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Possible Orchestral Tendencies in Registering Johann Sebastian Bach's Organ Music: An Historical Perspective

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Possible Orchestral Tendencies in Registering Johann Sebastian Bach's Organ Music: An Historical Perspective

by

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Dedication

To Frank Speller

mentor and friend,
whose encouragement and faith in me
were instrumental in bringing this project to fruition.

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Possible Orchestral Tendencies in Registering
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An Historical Perspective

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Many books have been written about Johann Sebastian Bach: his life, his music and his legacy. Known unquestionably as the finest organist and composer of organ music of his time, his musical knowledge was not limited to the organ. He wrote in virtually all forms and for all instruments and combinations of instruments. One area of Bach study that remains a mystery for organists is how to register his organ works. In spite of the vast number of works for organ, there are only four or five instances of specific registration suggestions made by Bach. German registrational practices during the first half of the eighteenth century were not well defined because of the great variety of styles of organ building.

This treatise examines Bach's knowledge of design and acoustics, major styles of organs of the period, the various colors available on those organs and

Bach's specific recommendations of registration. Chapter 1 begins with Bach's early exposure to the organ and his life after the death of his parents. This is followed by study of Bach's written assessments of organs, all of which provide information of his expectations about organ building. Chapter 2 is a study of organs during Bach's lifetime and the changes brought about by construction changes as well as changes in taste. The organs of Schnitger, Silbermann and Hildebrandt are examined in depth as representatives of the different styles of the period. Chapter 3 begins with a discussion of the general nature of organ stops, including categories of organ pipes. An assessment of those stops found on the organs that were known to Bach (Appendix A, pp. 110-123) ends the chapter. Chapter 4 commences with a report of *organo pleno* as a means of registration through the Baroque period. The chapter continues and ends with Bach's specific registrations and the manner in which they are used. Chapter 5 is an examination of other sources of registrational information from the period—specifically those of Kaufmann, Mattheson, Silbermann, Agricola, Adlung and Marpurg—and how those registrations might be applicable to the music of Bach.

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INTRODUCTION

For at least the last thirty years, organists have had an overriding concern about and interest in matters of authenticity regarding the performance of pre-nineteenth-century organ music, especially that of Johann Sebastian Bach. Much more is known now than ever before about aspects of Bach's manner of performing than about the actual registrations he used. There are only four known examples of Bach's specific registration indications other than that of "*organo pleno*". Although his exact registrational practices will never be known with certainty, this study will provide historical paradigms. It is better to know how Bach might have registered any of his pieces, than to take no interest in the historical considerations that will be presented. Information from various sources currently available, ranging from fragments to highly detailed studies, will be assembled here from this writer's research to offer a more comprehensive picture.

Chapter 1 will reveal J. S. Bach's fame as a tester of organs, his practical knowledge of organ building and his standard of organ building as reflected in his written reports. An overriding concern throughout his life about an adequate wind supply for the organ will be noted. His desire for gravity of sound, especially with the use of the Subbass 32', is also of paramount importance. Bach's suggestion that manuals be coupled together for a variety of more colorful sounds is likely the first documented example of an organist combining a few stops on two manuals.

The principal types of organs played by Bach are the focus of chapter 2. Arp Schnitger, Gottfried Silbermann and Zacharias Hildebrandt serve as representative organ builders of the period. The style and preferences of each of the three builders will be discussed. The chapter will show the enormous variety of instruments that Bach encountered in his lifetime.

Chapter 3 will describe the general nature of organ stops and their orchestral orientation. A brief discussion of each category of organ pipes, their historical evolution and their common use will be included. Generalities from the Table of Organ Stops known to Bach (Appendix A, pp. 110-123) will conclude the chapter.

Chapter 4 explores registrations indicated by Bach in association with forms. The frequency and variety of "full organ" (*plena*), along with Bach's specific registrations, will be covered in the chapter. Bach's use of the organ in some of the cantatas and in *Matthäuspassion* is of particular interest since the organ is usually thought of as a continuo instrument only in those types of works.

The final chapter will offer registrational suggestions from Bach's contemporaries. Those discussed will include Georg Friedrich Kaufmann, Johann Mattheson, Gottfried Silbermann, Jakob Adlung, Johann Friedrich Agricola and Friedrich Marpurg. Their offerings vary in quantity and content and are often in disagreement with each other. Nevertheless, their ideas are very helpful in filling out the sketchy information left by Bach.

Although nothing specific can be said about any registration that Bach may have used except for those to be cited, it seems reasonable that his choices

were more orchestral than many people realize today. Almost certainly, his registrational approach was not the same for each instrument but accommodated the aesthetics of the three builders to be discussed—Schnitger, Silbermann and Hildebrandt. He undoubtedly registered each of the primary categories of instruments in a way that best suited the instrument and—based on Johann Forkel's statement about Bach's peculiar manner of combining stops—he must have been quite sensitive to the offerings of each particular instrument.

Chapter 1

Johann Sebastian Bach, Tester of Organs

Among the vast number of writings on Johann Sebastian Bach, little has been written about his registrational practices for his organ music. Moreover, if one looks at registrational suggestions in various editions that are regularly used today, one is struck by a real divergence of opinion. Editors interpreted the sounds of Bach's organ music in relation to the organs they knew and the typical practices of their times. Bach himself rarely supplied information about registration. Unlike France, where registrational practices in the eighteenth century were standardized, registrational practice in Germany varied from organist to organist and region to region due to the large variety of available organs.[1] Consequently, from the 1920s to this day, controversies have arisen regarding what constitutes an authentic approach to Bach's registrations. Johann Nikolaus Forkel, who wrote the first biography of Bach, comments on

> the peculiar manner in which he combined the different stops of the organ with each other, or his mode of registration. It was so uncommon that many organ builders and organists were frightened when they saw him draw the stops. They believed that such a combination of stops could never sound well, but were much surprised when they afterwards perceived that the organ sounded best just so, and had now something

[1] This situation continued through the time of Mendelssohn, so that Mendelssohn indicated dynamic levels instead of registrations for his organ pieces.

> peculiar and uncommon, which never could be produced by their mode of registration.[2]

Forkel was personally acquainted with Bach's two eldest sons, Wilhelm Friedemann and Carl Philipp Emmanuel. They served as sources of much of the information that Forkel presented in his biography on Bach. In his father's obituary, C. P. E. Bach says, "He [Johann Sebastian] also knew the construction of organs thoroughly. . . . organ-building as a whole he understood in the highest degree."[3]

There is no documentation to indicate where J. S. Bach gained this expertise in organ building. His exposure to organs in need of repair might have been one source of his knowledge. Bach's great uncle's son, Johann Christoph, was organist at the *Georgenkirche*[4] in Eisenach from 1665 until his death in 1703.[5] Bach spent the first ten years of his life in that city. Early in Johann Christoph's tenure there, he created a proposal for a new organ. Construction of the new instrument did not begin until 1696. Young Sebastian may have had the occasion to become familiar with the existing organ and may even have been familiar with the proposal and the detailed expectations for a new instrument.[6]

After the death of his father in 1695 (his mother had died the previous year), young Johann Sebastian went to live in Ohrdruff with an older brother,

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[2] Johann Nikolaus Forkel, "On Johann Sebastian Bach's Life, Genius and Works," in *The New Bach Reader: A Life of Johann Sebastian Bach in Letters and Documents*, revised and enlarged edition Christoph Wolff (New York: W. W. Norton, 1998). Original edition: *The Bach Reader,* Hans T. David and Arthur Mendel, eds. (New York: W. W. Norton, 1945), 438.
[3] Peter Williams, *The Organ Music of J. S. Bach*, vol. 3 (Cambridge: Cambridge University Press, 1984), 139.
[4] See page 125 for specifications.
[5] Homer D. Blanchard, *The Bach Organ Book* (Delaware, Ohio: The Praestant Press, 1985), 5.
[6] Ibid.

another Johann Christoph, who was organist at the *Michaeliskirche*.[7] There were two organs in the church, a small two manual instrument with pedals and a smaller single manual organ without pedals built in 1421.[8] Of the larger instrument Johann Christoph said, " . . . almost nothing good could be played, particularly on the Rückpositiv."[9] The organ was in a state of repair or was being rebuilt during the entire time that Johann Sebastian was in Ohrdruff. It is possible that he had opportunities at the *Michaeliskirche* to learn first-hand about organ repair and maintenance. Organists of the time were also expected to have the knowledge and ability to make minor repairs and adjustments on their instruments. These included tuning the reed stops weekly because they frequently were out of tune due to changing weather conditions.[10]

Whatever his means of learning organ construction, Bach was in command of this subject by 1707. In that year, as organist at the *Blasiikirche* in Mühlhausen, he outlined plans to the town council for renovating and enlarging the organ there. Considering the recommendations he made for this organ at Mühlhausen, it is likely that he was familiar with, and influenced by, a book by Andreas Werckmeister, *Orgelprobe* (*Organ Proofing*, published 1698). An organist and theorist, Werckmeister (1645-1706) was best known for his expertise on organ construction, and his *Orgelprobe* contains detailed instructions for

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[7] See page 126 for specifications.
[8] Blanchard, 7.
[9] Hans T. David and Arthur Mendel, eds. *The New Bach Reader: A Life of Johann Sebastian Bach in Letters and Documents,* rev. and enl. ed. Christoph Wolff (New York: W. W. Norton, 1998), 36.
[10] Peggy Kelley Reinburg, *Arp Schnitger, Organ Builder: Catalyst for the Centuries* (Bloomington: Indiana University Press, 1982), 92.

testing new instruments as well as information about "the world of organists, organbuilders, organ examiners and churches of the late seventeenth century."[11] A copy of this book was not found in the inventory of Bach's estate after his death, but it is possible that he had access to it through his cousin Johann Walther—a pupil of Werckmeister—who owned a copy.[12] Bach recommended changes to the Mühlhausen organ that were specific and extensive. They are the best currently known source of Bach's ideas on organ building and design. The following items comprise Bach's "Projects for New Repairs to the Organ":[13]

- Due to a lack of sufficient wind, three new bellows are to be added.
- Four old bellows are to be adapted with stronger wind pressure to [accommodate] the new SubBass 32'[14] and other bass stops.
- Wind chests are to be altered to allow any or all of the stops on the organ to be played without altering the wind pressure.
- A coupler is to be added between the new Brustpositiv and the Oberwerk.
- A SubBass 32'[15] of wood is to be added, "which gives the organ the most solid foundation;" it must have its own wind chest. [16]

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[11] Russell Stinson, "An Introduction to Werckmeister's *Orgelprobe*," *The American Organist* 30, no. 6 (1996): 36.
[12] Ibid.
[13] David and Mendel, 55.
[14] Organ pipes are measured in length by feet ('). The number given—32', 16' and so forth— is the length of the lowest sounding pipe in each rank. The pipe length becomes shorter as the notes go higher on the keyboard.
[15] For descriptions of all stops named in this paper, see Appendix A, *Table of Organ Stops*, pp. 110-123.
[16] David and Mendel, 55.

- New and larger pipes [larger scale—a scale is the ratio of the length of a pipe to its circumference] are specified for the Trombone Bass with the mouthpieces arranged differently to produce a more solid tone.[17]
- The Trumpet 8' on the upper manual is to be replaced with a Fagotto 16' which Bach describes as "very useful for all kinds of new ideas (*inventione*s) and sounds very fine (*delicat*) in concerted music."[18] Thomas Harmon states that Bach's

> remarks about the usefulness of the new Fagotto offer a valuable clue to his solution of the problem of performing the rapid, running bass lines as continuo support in his concerted works for voices and instruments. Just as he often scored his orchestral parts in the fuller, louder choruses to include the Bassoon doubling the bass line, he indicated above [in this modification] that he used the organ's manual Fagotto in the same manner to play bass lines which would otherwise have been clumsy on the pedals.[19]

- Other changes to the upper manual include replacing the Gemshorn 8' with a Viol di Gamba 8', and the Quinta 3' with a Nasat 3'.[20] Harmon believes the exchange between the Gemshorn and Viol di Gamba "is indicative of the increased predilection for string registers in the eighteenth century organ."[21]
- The addition of a new manual, called the Brustpositiv, will consist of a Stillgedackt 8', Fleute douce 4', Quinta 3', Octave 2', Tertia, Mixture III, and Schalemoy 8'. Williams thinks that Bach's choice of the Fleute douce over a

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[17] Ibid.
[18] Ibid., 56.
[19] Thomas Harmon, "The Mühlhausen Organ Revisited: Precious Clues to Bach's Preference in Organ Design and Registration," *BACH: Journal of the Riemenschneider Bach Institute* 26, nos. 1 & 2 (Baldwin-Wallace College, 1995): 59.
[20] Quinta and Nasat are both stops that sound the twelfth tone above the note played. Nasats are members of the flute family, while Quintas are principals.
[21] Harmon, "Mühlhausen Organ," 60.

more traditional flute might hint at Bach's fondness for and move towards imitative stops of the eighteenth century.[22] Jacobus Kloppers in his analysis of the Mühlhausen instrument notes that "the new potential for combinations of sound along with the introduction of strings complies with the picture of a composer who was constantly in search of new sound combinations. . . ."[23] The presence of the milder Schalemoy reed indicates that "organ designers such as Bach leaned in the direction of . . . fuller, more cantabile solo sounds of the Krummhorns, Vox humanas with tremulant, and the newly developed Oboe and Chalumeau [Schalmei] types. . . ."[24]

- The parishioners request a set of chimes (bells) to add to the organ.
- The tremulant is to be regulated so that it "flutters" at the proper rate.[25]

In making these recommendations, Bach's opinions were very much affected by Werckmeister's treatise, a document that was highly influential in Bach's time. Bach decided on the specific renovations rather than leave them to the builder to suggest. As recommended by Werckmeister, he made a detailed list of all defects and the changes to be made and gave careful indications on which existing parts of the instrument were to be retained.[26] Perhaps it is possible that J. C. Bach of the *Georgenkirche* in Eisenach was influenced by Werckmeister as

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[22] Williams, *Organ Music* 3, 144.
[23] Harmon, 60.
[24] Clay Christiansen, "Toward More Innovative, Creative and Less Rigid Registration of J. S. Bach's Organ Works," *The Diapason* 86th Year: No. 3, Whole No. 1024 *(*1995): 14.
[25] David and Mendel, 56.
[26] Andreas Werckmeister, *Orgelprobe*, trans. Gerhard Krapf (Raleigh: Sunbury Press**,** 1976), 48.

was Johann Sebastian.[27] Of the changes made to the Mühlhausen organ, numerous similarities exist with J. C. Bach's improvements made to the *Georgenkirche* organ (1696-1707) in Eisenach, including the 32' pedal stop with its own wind supply, the large-scale Posaune, the Fagott 16', the Viola da Gamba, the Sesquialtera and the Glockenspiel.[28]

The first three items in Bach's report reflect his desire to provide an adequate wind supply. An additional wind supply—which would create more pressure and, thus, create a more stable wind—would encourage the use of more stops at one time on the instrument than had previously occurred. An often-quoted statement by his son, Carl Phillip Emmanuel Bach, told of Bach senior's favorite method for testing the adequacy of an organ's wind pressure:

> The first thing he would do in trying an organ was this: he would say, in jest, "Above all I must know whether the organ has good lungs," and, to find out, he would draw out every speaking stop, and play in the fullest and richest possible texture. At this the organ builders would often grow quite pale with fright.[29]

If there was a drop in the pitch or a loss of brightness to the sound, the wind supply was not sufficient. He obviously wanted the organ to have a sufficient wind supply to allow the use of the full organ with all stops sounding. He would receive that fuller, bigger sound from more copious and stable wind. The inclusion of a manual coupler in his work order indicates—to some extent—how massive Bach wanted that sound to be.[30]

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[27] An earlier treatise by Werckmeister, also called *Orgelprob*e, had been published in 1681.
[28] Williams, *Organ Music* 3, 123.
[29] David and Mendel, 396.
[30] To be even more assured of stable wind pressure, Werckmeister would perform the following: With the bellows in operation, he would place a plank of wood across the entire pedal board and stand on it so that most of the keys were sounding. Also with the bellows operating and all stops

One of the words used most frequently by theorists, organ builders and organists to describe the preferred sound of organs was *Gravität*. *Gravität* (gravity) refers to the depth and fullness of sound and was achieved through the use of additional 16' stops and one 32' stop, sounding one and two octaves below the unison pitch. Bach, in particular, recommended a Subbass 32' for an organ needing such a solid foundation as the organ at Mühlhausen, and a Fagotto 16' in place of a Trumpet 8'. In ordering the changes to the pedal Trombone, Bach explained that his decision was made "so that this stop can produce a much more solid foundation [*die beste Gravität*]."[31]

Most of Bach's other changes at Mühlhausen affected the various stops which provided more choice of solo sounds. The presence of Sesquialteras on all three manuals required a greater number of accompanying stops: strings, flutes or a combination of the two. A similar choice of accompanimental voices would have been available for the new Schalemoy. Before Bach's time, solo sounds would have been accompanied only by a Flute 8', Flutes 8' and 4' or a Principal 8', depending upon the volume of the solo stop or combination. Such options provide a wide variety of accompanimental alternatives or soft registrational choices that could stand by themselves. These sounds were present in the Mühlhausen organ as well. However, in Bach's suggestions, we see an expanded

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drawn, he would lay both arms on the keyboards. A third test had no stops pulled and keys depressed with both arms. "One of the examiners must test the keyboard by tapping the keys with both arms in quick succession, while the other observes the bellows. If these are shaking, there can be no doubt that the wind is allowed miraculously to escape, that holes have been drilled all over the top boards and the pipes, and that toes have been mashed. Some organ builders have so masterfully developed such practices that not one out of a hundred organists will detect these defects." (*Organ-Proofing*, 17.)

[31] David and Mendel, 55.

choice by the addition of strings 8' and 4' which—with the addition of the 16' Violon in the Pedal—form a complete string ensemble. The act of exchanging the Gemshorn for the more up-to-date imitative sound of the Viol di Gamba was, in large part, the basis of this expanded vocabulary of organ sounds. Coupling the Salicional 4' of the Rückpositiv with the Viol di Gamba 8' of the new Oberwerk made this combination possible.[32] If Bach himself proposed coupling the above mentioned stops, it is logical to assume that he would not have been opposed to coupling various combinations of Flutes 8' and 4' also, although his first choice would have been to use 8' and 4' stops on the same manual.[33]

Bach was one of three organ specialists asked to examine the new organ at the *Marienkirche* in Halle in April of 1716. Johann Kuhnau from the *Thomaskirche*, Leipzig, and Christian Friedrich Rolle from Quedlinburg joined him in this project. The newly rebuilt, three-manual instrument by Christopher Cuntius was three years in the making.[34] Following Werckmeister's suggestion that one should take ample time to test a new organ, the three examiners took three days to examine this instrument. The first defect the examiners discovered was a problem with the wind supply, one of the deficiencies with which Bach had dealt at Mühlhausen. Although this large organ design called for nine bellows and the builder had provided ten, the wind supply produced was still below

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[32] Bach's suggestion of using strings 8' and 4' on two different manuals coupled together may be the first documented instance of this now common technique.

[33] Coupling stops of different families from different manuals possibly could cause tuning and wind problems and coloristic confusion and impurities, e.g. combining a flute stop with a string stop produces a new sound. Manuals coupled together would make the touch heavier and could cause problems when pipes of different scale were mixed.

[34] William L. Sumner, *Eighth Music Book Containing the Organ of Bach and Matters Related to This Subject* (New York: Hinrichsen, 1956), 90.

standards. It registered 32°-33° instead of the required 35°- 40°.[35] The low wind pressure resulted in some unsteadiness of sound when the Hauptwerk was played. The examiners also made note of the fact that the builder had used inferior metal for those pipes not visible from the exterior. This technique saved on the cost of building the organ, but provided a different sound quality than if the contract had been followed using the correct proportion of lead and tin. In addition, the larger pipes and the reeds were not voiced properly.[36]

The organ at the *Marienkirche* is interesting because of the presence of a Tierce on each manual and the absence of a Sesquialtera mixture. Blanchard rightly observes that this is a noteworthy change in the design specifications of organs of the time.[37] The organ has few reed stops for an instrument of its size, except for those of the pedal division. This shortage cannot have gone unnoticed by Bach and may have been particularly regretted by him, because his love of reed stops was well known and will be discussed later in the chapter.[38]

Soon after his appointment as Capellmeister at Köthen in 1717, Bach was invited to the University of Leipzig to examine the new organ at the *Paulinerkirche* (December, 1717). Apparently, the organ was designed by a now unknown builder and built by another, Johann Scheibe, under less than optimal circumstances. One of Bach's criticisms addressed the lack of space in the organ case, a problem that Scheibe had inherited, not created. According to Bach's written report, Scheibe had asked for additional space for the instrument, but his

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[35] Blanchard, 92.
[36] Ibid.
[37] Ibid., 93.
[38] See quote referenced at note 50 of this chapter.

request was turned down.[39] As a result of this limitation, certain repairs would be difficult to undertake in the future. One of Werckmeister's admonitions was that the organ builder should be involved in deciding the proportions of an organ case so that such problems could be avoided.[40]

The lack of space in some parts of the case necessitated the omission of two pedal reed stops called for in the original plan, a Schalemoy 4' and a Cornet 2'. Although this may not seem like a significant loss in an organ of this size, the absence of these two higher pitched reeds actually reduces the number of reed stops by half. The remaining two reeds are in the Pedal, leaving none on the manuals for color stops. Considering Bach's affinity for color stops when devising his own specification lists, Bach again must have considered the shortage of reed stops a severe drawback. The lack of color stops was not an item cited in his report, because his duty was to report on the instrument as it was and not what he thought it should have been. Another of Bach's favored sounds was missing with the absence of a 32' stop in the Pedal that, as previously mentioned, was supposed to give "gravity" to the organ sound.

Other problems reported by Bach included an inadequate and unsteady wind supply. Seemingly of more importance to Bach was the inequality of voicing which, he said, "must and can be remedied at once by the organ builder, so that, in particular, the lowest pipes of the Trombone and Trumpet Bass [es][41] shall not speak so coarsely and noisily, but rather produce and maintain a clear

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[39] David and Mendel, 84.
[40] Werckmeister, 47.
[41] These two stops are in the pedal.

and firm tone. . . ."[42] Blanchard translates this part of the report saying "that the pipes should not start to speak with such a horrible clatter. . . ."[43] Bach would have also liked a lighter action on the keyboards as well as a shallower keyfall, but "since, on account of the too close [*sic*] [confined] construction, this condition could not be changed, it must be accepted as it is. . . ."[44] These comments offer another example of the wisdom of Werckmeister's advice to involve the builder in designing and siting the organ from the beginning.

The only other reports available are those written by Bach late in his life. In the interim he most likely continued to visit organs in the Leipzig area and make verbal comments about them. In August of 1746, Bach made an official examination of the newly built Scheibe organ at the *Dorfkirche* of Zschortau and played the dedicatory recital. It was a one-manual instrument with Pedal. Bach's report was succinct and favorable. He did not even note the minor problems he found since the builder was present and made immediate corrections as Bach suggested them. No major deficiencies were found, so Bach's report provides no further enlightenment indicating his preferences. He did point out to the Magistrate of Zschortau, who had the responsibility of overseeing the instrument, that Scheibe had made several additions to the organ not called for in the contract. These manual additions made a significant difference in the amount of color and variety available on this single-keyboard instrument. The additions included a Quinta Thön 16'—which would have provided the sub-unison pitch—Viola di

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[42] David and Mendel, 84.
[43] Blanchard, 102.
[44] David and Mendel, 84.

Gambe 8', Fleute-Travers 4', Super Octava 1' and a coupler from manual to pedal.[45] The Viola di Gamba reportedly was a divided stop consisting of a wooden bass and flared metal pipes for the treble.[46] The addition of a Fleute-Travers 4', as Bach reported, seems to be in question based on later reports. Scheibe's contract called for a Fleute doux 4'; when the existing specification list was reviewed prior to additional work in 1870, all the details matched what was known of Scheibe's work except for the presence of only one 4' flute.[47] The coupler between manual and Pedal was affixed permanently. Thus, the Pedal lacked any autonomy. What the Pedal lacked in independence, however, was offset by the presence of the two 16' stops, one of which was a Sub Bass and the other, a Posaunen.

Just a month later Bach was joined by Gottfried Silbermann to examine the newly built organ by Zacharias Hildebrandt at the *Wenzelskirche* in Naumburg (September, 1746). When the town council was considering a new instrument for the church in 1743, Bach had been asked to evaluate the existing organ for them. Scholars believe that Bach likely recommended Hildebrandt as the builder. A former student of Silbermann, Hildebrandt was a strong advocate of the *Werkprinzip*[48] method of designing an organ, as is seen in the stop list of this instrument (p. 159). There was a principal chorus in each division[49] based on 16'

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[45] Williams, *Organ Music* 3, 153.
[46] Blanchard, 179.
[47] Ibid., 178.
[48] This term did not exist in the eighteenth century. It was coined in the early twentieth century in the Neo-Baroque movement to denote an organ based upon different pitches of principals: for example, Pedal 32', Hauptwerk 16', Positiv 8' and Brustwerk 4'.
[49] A term that refers to a group of pipes heard from or placed within a specific locale of the organ console. It would not have been uncommon, particularly in the Baroque period, to refer to the

Principals in the Pedal and Hauptwerk and on 8' Principals in the Rückpositiv and Oberwerk. One might have expected a Principal 32' as the foundation in the Pedal, but Hildebrandt was using an existing case as we have seen done before in Mühlhausen and would not have had the space necessary for such a set of pipes. Rückpositivs were very much out of fashion by this time. However, the Rückpositiv at the *Wenzelskirche* is likely the result of the existing case. String ensembles (8' and 4') are available in the Pedal and Rückpositiv; flute ensembles of various sizes exist in all divisions. Placing the Quintadehns in different divisions created a situation similar to that which Bach had in Mühlhausen where the strings were on different manuals but could be coupled.

One item of particular interest is the absence of softer reeds that could be used as color or solo stops. Of the fifty-three stops in the organ only eight are reeds and all but one of those are substantial in sound, not of a solo quality. The only reed gentler than a Trumpet is the Vox humana on the Oberwerk. The other reed stops are powerful Trumpets and the majority of those are found in the Pedal. Knowing Bach's love of multiple reed sounds and the likelihood that he was influential in drafting this specification, one wonders why there were so few reeds. Would he have been more expansive with the reeds if there were room for them in the existing case? Were his tastes and those of the organ world changing by mid-eighteenth century? Was it a matter of expense? Whatever the reason, the reed sound available at the *Wenzelskirche* did not compare to that of the

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'Hauptwerk Organ,' the 'Pedal Organ,' etc. The larger term 'Organ' is comprised of these lesser organs or divisions.

Katherinenkirche in Hamburg that Bach liked so well. Bach's taste was recorded in Adlung's *Musica mechanica organoedi* and translated by Blanchard as follows:

> In many old organs in Germany, for example in the organ of St. Catharine's [*sic*] church in Hamburg, and in others, and in many fine modern organs in France, are to be found a great many reeds. The greatest organ connoisseur and organ player of Germany and perhaps of Europe, the late Kapellmeister Bach, was a great friend of these; he must surely have known what might be played on them and how . . .
>
> In the St. Catherine organ in Hamburg there are sixteen reeds. The late Kapellmeister, Mr. J. S. Bach in Leipzig, who once let himself be heard for two hours on this as he said, in all things excellent instrument, could not praise the beauty and variety of tone of these reeds enough. . . . [50]

The written report by Bach and Silbermann about the organ at the *Wenzelkirche* indicated that all was in order regarding quality and workmanship, including the extra bellows and the addition of the Unda maris stop. But the builder was instructed to go through the entire organ to assure equality "both of voicing and of key and stop action."[51]

The importance of testing new organs in the Baroque period and earlier lies outside the realm of current experience. Our contemporary situation is one in which most organists have insufficient knowledge to question the work of the artist/builder. This was not the case during Bach's time. New organ installations were traditionally cause for great celebration because they increased the esteem in which a town was held.[52] Werckmeister tells of an examination at the

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[50] Blanchard, 18.

[51] David and Mendel, 222.

[52] Although most organs of the period are found in churches, it was not uncommon for the organs to be owned by the town councils thus making the performers on such instruments, employees of the town, not of the church.

Schlosskirche in Gruninger, 1596, "when fifty-three organists from all over Europe examined and reported on the instrument."[53] *The New Bach Reader* includes the dinner menu for the "Occasion of the Dedication of the New Organ" for the *Frauenkirche* at Halle.[54] The extraordinary menu includes five types of meat served for the occasion. In addition to the resplendent array of food, the inspection committee was provided with "coachmen and a staff of servants."[55]

Bach's history of examining organs began in 1703 in Arnstadt when he was only eighteen years old and continued throughout his life; the final examination took place at the *Heiliggeistkirche* in Potsdam in 1747.[56] Through those years, Bach's attention was focused in large part on the wind supply of the instrument, that it be adequate for the size of the organ in order to maintain a stable pitch and one that did not fluctuate in intonation. He also expected the voicing of each rank of pipes to be uniform in quality, even as he expected that all details would be attended to as well as humanly possible. There were situations, such as when there was an existing case, about which the builder could do nothing. Bach recognized that the builder was performing to the best of his ability despite constraints. There were also instances when the builder went beyond the strict letter of the contract; Bach made certain to call this to the attention of the purchasing agent, just as he pointed out instances when the builder failed to meet the specifications of the agreement. He also wanted there to be

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[53] Sumner, 61.
[54] David and Mendel, 77.
[55] Sumner, 91.
[56] Both this instrument and the first organ examined at Arnstadt are among the numerous organs known to have been tested by Bach for which no report is extant.

more colors, particularly orchestral colors, on organs. C. P. E. Bach states of his father's abilities that "no one has ever tried out organs so severely and yet at the same time honestly as he. He understood the whole building of organs in the highest degree."[57] This statement garners no argument from historians. Perhaps a statement from his obituary, written in 1750, published in 1754 and compiled by C. P. E. Bach and Johann Friedrich Agricola, best represents the value of Bach's abilities as an organ examiner:

> He not only understood the art of playing the organ, of combining the various stops of that instrument in the most skillful manner, and of displaying each stop according to its character in the greatest perfection, but he also knew the construction of organs from one end to the other.[58]

[57] David and Mendel, 396.
[58] David and Mendel, 306.

Chapter 2

Principal Types of Organs Played by Bach

In more than fifty years of playing the organ, Bach encountered instruments from numerous builders in various parts of north and central Germany. Each had his own ideas about the best method of organ building. During those years, organs evolved as did Bach's style of writing and sound preferences. Just as Bach learned about French and Italian music—in part by literally copying the music of, for example, Nicolas de Grigny and Girolamo Frescobaldi—and incorporating their stylistic traits into his compositions, so did the organ builders of the day come under various influences. Certain regions in Germany had organ building styles characteristic of their specific geographic areas. Peter Williams states "more often it was local traditions that most influenced the builder of a new organ even when he was a foreigner." Nevertheless, those styles were seldom so 'hard and fast' that builders were not subject to influence from other areas. A good example of this situation is

> the fine Austrian organ at Herzogenburg, built in 1747-52 by a Westphalian, Johann Henke, who must have known very different organs but who was more influenced by Klosterneuburg; he 'modernized' the Klosterneuburg scheme by dividing the cases in typically Austrian manner and by giving the instrument a tonal and visual character that summed up, perhaps better than a native builder could have done, the regional style of Lower Austria. [1]

[1] Peter Williams, *A New History of the Organ from the Greeks to the Present Day* (Bloomington: Indiana University Press, 1980), 151.

Hence, one might find two quite different organs by the same builder in different locales based on factors other than the builder's preference. It is not at all uncommon to mold one's work, no matter what the field, to satisfy best the buying public and to meet the most current style of a particular geographic region.

During Bach's half century of active involvement in the music culture of Germany, numerous changes occurred in the expectations for organs being built, rebuilt or enlarged. By the middle of Bach's life (1685-1750), 4' solo stops, both flues and reeds, disappeared from pedal specification lists. One of the traditional ways of establishing the choral *cantus firmus* in organ music for more than a hundred years had been to feature it on a 4' stop in the Pedal. Coinciding with the disappearance of 4' pedal stops, chorale preludes—frequently featuring the chorale melody as a pedal solo—were also losing favor with composers. Bach was among the last of the German Baroque composers to write a significant number of works based on chorale preludes. With this and other changes to the pedal division, the Pedal was no longer able to function as an independent division of the organ. Manual-to-pedal couplers were then needed to provide the upper work, and, thereby, balance the Pedal with the manual, thus compensating, particularly, for the declining number of 4' pedal stops.

The importance of reed sounds, in general, also declined during those years and strings gained a more prominent place in instrument design. Organs built during this period contained fewer ranks in the mixtures. It was common to find multiple mixtures of twelve to fourteen ranks each on larger seventeenth century North German organs. However, by mid-eighteenth century, mixtures

more commonly consisted of three to six ranks. The number of 8' ranks increased, in part, because stabilized wind supplies in organs no longer necessitated the precautionary practice of not combining stops of the same pitch. The earlier standard of one or two 8' flue stops per manual now became as many as six. While pedal divisions remained limited to one or two 8' stops—plus one or two 8' reed stops—the number of 16' stops expanded from one to three. Of the organs that Bach probably heard or played, the Subbass 16' was the stop most frequently encountered if the organ had a single 16'. The Principal 16' was typically added if there were two 16' stops and, in the case of three 16' stops, the additional rank most often was a Violon 16'. The addition of the Violon 16' created the possibility of producing a complete string ensemble using both the manuals and Pedal. Also, this stop provided better pitch definition to the Principal 16'. There were at least five organs known by Bach that had some combination of strings at 8' and 4' pitches on the manuals—one of which included a second 8' string on the manual—in addition to the pedal Violon 16'.[2]

There were also physical changes to organ cases during Bach's lifetime. A significant change was the omission of the Rückpositiv in new instruments in Bach's part of Germany, Thuringia. Organs became housed in only one case. There was a Rückpositiv on the organ at Mühlhausen and even on the Hildebrandt instrument at Naumburg, which Bach examined in 1747. However, in both instances the builders were working with existing cases that had been designed for such divisions. Omission of Rückpositivs would have made the music less three-

[2] Mühlhausen: *Blasiikirche*; Gera: *Johanneskirche*; Altenburg: *Schlosskapelle*; Naumburg: *Wenzelskirch*e; Potsdam: *Garnisonkirche*

dimensional. They were always placed to the back of the performer, thus closer to the listener, creating a spatial difference between the sounds of the Rückpositiv and those coming from the main case.

Another change was the abandonment of the *Werkprinzip* concept of organ design. The late seventeenth-century instrument, based on that concept, had a "single main case, the Chair [Rückpositiv] organ, the separate pedal towers . . . all known by the end of the 14th century."[3] By mid-eighteenth century, stops (pipes) in the manuals and Pedal gradually were spread over a larger area in one or more cases. "By 1740 or so, the keyboards [consoles] would be placed . . . in a commanding position on the gallery [organ loft] floor, and the various parts of the case strewn around the west-end windows."[4] Some of these trends and styles are identified by the work of the following builders whose organs were known to Bach: Schnitger, Silbermann and Hildebrandt.

Arp Schnitger (1648-1719) is the best-known name in North German organ building. He was born into a family that included generations of carpenters, cabinetmakers and other woodworkers. Until he reached the age of eighteen, Arp apprenticed in woodcraft with his father, who was known for his intricate organ casework.[5] In 1666 he began an apprenticeship with his cousin, Berendt Huess, who was the privileged builder for the court of Celle and in whose work "the best of the old and the new were combined."[6] In short, Schnitger had

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[3] Peter Williams and Barbara Owen, *The New Grove: Organ* (New York: W. W. Norton, 1988), 99.
[4] Ibid. 137.
[5] Reinburg, 25.
[6] Peter Williams, *The European Organ 1450-1850* (Bloomington: Indiana University Press, 1966), 106.

excellent training. His independent work began with the fulfillment of numerous contracts left by Huess upon Huess's death. Schnitger's fame as an organ builder grew throughout his career. Through information gleaned from church and municipal records, the extent of Schnitger's work and reputation becomes evident. He built "organs from Flensburg [near Denmark] in the far north to Stettin [far east Germany] and Moscow in the east, Portugal in the south, and England to the west and even in Brazil. This is a surprising impact for a workshop of the Baroque era."[7] Scholars speculate that Schnitger's influence was spread over such a vast area because of "the political battles between the Netherlands and Spain, the attitude of the Reformation toward the organ and the relocation of organs necessitated by the Thirty Years' War."[8] Schnitger's reputation led to building and repair privileges at the courts of the Count of Oldenburg and Delmenhorst, the Dukes of Schleswig-Holstein, and the King of Prussia in Berlin.[9] Such privileges gave Schnitger sole rights to work on any organs within those jurisdictions, an always-coveted favor and a mark of his integrity and value as an organ builder.

Schnitger's work corresponded to organs in the North German region, especially in and around Hamburg, which were influenced heavily by Dutch organ-building trends of the time. Like their Dutch brethren, North German builders were known for a large number of diverse reeds, a relatively small number of mutations, substantial mixtures and amply developed pedal and

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[7] Reinburg, 4.
[8] Ibid., 5.
[9] Williams, *European Organ*, 112.

Rückpositiv divisions. Ruckpositivs were considered necessary for use with choral melodies. According to Peter Williams, Schnitger used chests that were narrow in depth and relatively short in length, judging by late seventeenth-century standards. Narrow chests provide a better egress of sound from pipes. In order to have enough chest room for all the pipes, each division included two chests. They were ordinarily so shallow that they discouraged organists from drawing many stops at once. This created an obstacle to the massive-sound style of registration that would develop in the eighteenth century.[10] Schnitger improved the distribution of sound by placing chests farther apart than was structurally necessary, thus allowing for a better distribution of sound in the church and providing more opportunity for spatial contrast between the divisions.

Schnitger was noted for his use of old materials, retaining as much of an existing instrument as he determined to be feasible.[11] The use of existing materials and the need for many apprentices due to the size of his workshop, however, led to inconsistent qualities from organ to organ. He gave particular attention to old mixtures, sometimes reducing or increasing the number of ranks. He insisted on more gravity (fundamental) in the reeds and introduced his own improved types whenever he thought it necessary. Schnitger considered the primary function of reeds to be to give variety and lend intensity to the chorus rather than to provide power. In describing Schnitger's reed pipes, Williams says "in the bottom two or three octaves the reed-tongues were relatively thick and

[10] Ibid., 115.

[11] "One of today's best preserved instruments at Coppel (from Johanniskirche, Hamburg, 1679) contains more pipework from the time of Jakob or Hans Scherer I than it does of Schnitger himself, however much the latter may have given the organ its present form." (Williams, *European Organ,* 112.)

broad for the period, both for solo and chorus reeds; the latter especially are surprisingly smooth and restrained."[12]

Schnitger did not seem to have the same disdain for Rückpositiv divisions that was developing across Germany by the latter part of Schnitger's career. They were incorporated on numerous of Schnitger's instruments. As noted earlier, Bach had experience of his own with Rückpositivs.

In May of 1687, church officials gave Dietrich Buxtehude, the celebrated organist and composer, permission to inspect Schnitger's organ at the *Nikolaikirche* in Hamburg,[13] since the organ at Buxtehude's own church was in need of repairs. He reported of the Hamburg instrument, "it had been manufactured with good success and [he had] manifold pleasure" and "found it to his good satisfaction [in testing it]."[14] Although his church never acted on Buxtehude's recommendation, Buxtehude's report attests to the high regard in which Schnitger's work was held.

Despite the variations in quality produced by his use of existing materials, there are some general characteristics to be found in all of Schnitger's organs. When possible, Schnitger built organs based on what came to be called the *Werkprinzip* advocated by Werckmeister.[15] String stops are rarely found. An appraisal of stop-lists from nineteen organs revealed five organs with string sounds. Of the five organs, none has more than a single string stop—all on the

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[12] Ibid., 119.
[13] The organ built for this church was the largest from Schnitger's workshop containing sixty-seven stops on four manuals. The organ was destroyed by fire in 1842.
[14] Reinburg, 30.
[15] Schnitger wrote the preface in the form of a poem for Werckmeister's *Orgelprobe*.

manuals—and, except for a Viol de gamb 4' at the *Eosander-Kapelle* in Berlin, all are at the 8' pitch.

One sound that Schnitger avoided was the 1' pitch, although in working on the organ in the *Cosmaekirche* in Stade, he did not remove the Nachthorn 1' that had been placed in the Pedal by another builder.[16] His pedal specifications are weighted on the side of higher-pitched stops, frequently having three 4' stops—flute, principal and reed—and two 2' stops—flute and reed. The single 16' in the Pedal would not have achieved Bach's desire for *gravität*. Perhaps a bit of elusive gravity was achieved with Schnitger's tendency to construct his bass principal pipes with wider scaling than was commonly found in his time.

Schnitger made or repaired at least one hundred and fifty instruments, in his half century of active building, from small positivs to large organs. All were splendid examples of the period.[17] Of this number, at least twenty-six have been restored to essentially their original condition, including one in Brazil and another in Portugal. Although Schnitger died in 1719, many of his ideas and concepts continued to influence the design and construction of organs in North Germany for another half century. His model of a well-proportioned instrument and attention to quality of sound and construction was spread throughout Germany and other parts of Europe by at least fifty students who learned their skills under his guidance. It was not until 1869 that the direct link with the workshop of Schnitger came to an end.[18]

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[16] Reinburg, 77.
[17] Ibid., 111.
[18] *The New Grove Dictionary of Music and Musicians*, 2nd ed. s. v. "Schnitger."

Another builder of historical significance during Bach's life was Gottfried Silbermann (1683-1753). He came from a family of organ builders, a family that had two distinct locations of organ building.[19] Andreas, the older brother, worked from Strasbourg[20] in France and Gottfried worked from the state of Saxony[21] in eastern central Germany. In the early 1700s, Gottfried went to Strasbourg to learn the craft of organ building from his brother.[22] During Gottfried's time in Strasbourg, he may have been left in charge of the workshop, while Andreas spent almost three years in Paris studying the techniques of French organ building. Some of Gottfried's work in Saxony reflects the years of work with a brother heavily influenced by French tradition.

Gottfried left Strasbourg in 1710. Peter Williams indicates a distinct possibility that, after leaving his brother's business, Silbermann spent time working with Schnitger or in Schnitger's workshop in Berlin.[23] One of Gottfried's first large undertakings was a commission to build the organ for the Freiberg Cathedral.[24] Although the instrument was completed in 1714, Silbermann chose to make Freiberg his home for the rest of his life and the location of his workshop. Silbermann's prestige in the field of organ building was

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[19] This happened, in part, because of the amount of devastation wrought to Saxony and southern Germany by the Thirty Years War (1618-1648).

[20] Strasbourg is a city located in northeastern France just across the border from Baden-Baden, Germany. It is in the region of Lorraine.

[21] Saxony is a region in eastern central Germany that includes such cities as Dresden, Halle, and Leipzig, a region of great familiarity to Bach.

[22] According to William Sumner, Gottfried ended up at his brother's organ firm after being removed from his school at his teacher's request. This followed short periods of apprenticeship and failure at three other trades. (Sumner, 223.)

[23] Williams, *New History,* 115.

[24] There are numerous cities in Germany named Freiberg/Freiburg. The one associated with Silbermann is located near Dresden.

acknowledged by Elector Friedrich August in 1723 with the title of "Honorary Court and State Organ Builder to the King of Poland and Duke of Saxony."[25]

Silbermann built approximately fifty organs in his lifetime, all in central Germany. Unlike Schnitger and Hildebrandt, Silbermann did not spend his time rebuilding or enlarging existing instruments. Thus we find more consistency in his instruments than in those of Schnitger. In fact, one of the complaints about Silbermann's organs was the predictability of the design of his instruments, at least on paper. One of those making such a complaint was Johann Friedrich Agricola (1720-1774), a theorist and student of Bach. Sumner quotes E. Flade—twentieth-century music historian—as saying

> Agricola found fault with the all-too-uniform dispositions [organ specifications] of Silbermann organs. He attributed it to a certain timidity on the part of Silbermann, as if Silbermann did not build any stop unless he was from the very beginning convinced of its success. To be sure, on paper, Silbermann's dispositions do look monotonous. But it was early recognised that with Silbermann's varied scale [dimensions of pipes] the dispositions did not have to be changed at all. The real reason that Silbermann limited himself to relatively few voices is to be found in a principle of artistic economy and a justifiable conservatism. Each manual of a Silbermann organ has its own characteristic timbre, each has something to intensify the full sound. . . .[26]

Spatial differences in the buildings and how those differences would affect the actual sound of the instrument were also not taken into account by his critics. The various sizes of churches and the use of different building materials made it difficult, if not impossible, to accurately gauge the differences in sound between two instruments that appeared alike on paper.

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[25] *Grove Dictionary*, s. v. "Silbermann."
[26] Sumner, 237-238.

In spite of their magnificence, Silbermann's organs are somewhat unusual in their mix of old and new concepts of organ building. Many of Silbermann's organs were based on the *Werkprinzip* design in which each keyboard, division, was built on a principal stop of various lengths (16', 8', 4' and 2').[27] This concept was quite dated at this point in organ development. The pedal divisions of Silbermann's organs are another peculiarity. Twelve sets of specifications of his organs were reviewed by this author. The pedal divisions of those organs are very meager when compared to those of other builders. In assessing the organs of moderate size—two manuals with twenty to thirty stops—it is notable that pedal sounds were represented by only three to five stops. These were the basic sounds of a Principal 16' or Bourdon and a 16' and 8' reed. For example, the organ at the *Georgenkirche*, Rötha, built in 1718 with two manuals and Pedal, displayed those exact pedal stops: Principalbass 16', Posaune 16' and Trompete 8'.[28] Four of the organs are listed specifically as having no manual-to-pedal coupler. Without this device, they did not even have the ability to enhance the volume of the Pedal by coupling more sound to it from the manuals. Silbermann's largest organs have three manuals with the number of stops ranging in the mid-forties. These instruments have, at most, eight pedal stops.[29] This mode of pedal design appears strange when compared to that of other builders of the Baroque period in Germany. Sumner states that the pedal divisions were usually the weakest part of

[27] Principals are one of the four categories of sound on an organ; the other three are flutes, strings and reeds.
[28] Sumner, 226.
[29] There are discrepancies in the pedal specifications from various sources for the Cathedral organ in Freiberg, with the number of pedal stops varying between seven and nine.

Silbermann's organs.[30] Nortjé presents another critical comment from Agricola: "Indeed . . . a 32-foot Posaune or, even more, a Principal of the same pitch is one of the greatest masterpieces of an organ-builder. The late Gottfried Silbermann was much too timid to ever risk making one of these stops."[31] When thinking in terms of Bach's organ music, the compass of a Silbermann pedalboard—CD to c —would have been limiting, since numerous of Bach's organ works went to at least d′ and, on occasion, f ′.[32]

Although Werckmeister and others were seeking a more flexible tuning system, Silbermann did not like the use of equal temperament. Nonetheless, he did use it in a few of his instruments. A comment of Georg Andreas Sorge,[33] in 1748, describes a reaction—negative, in general—to Silbermann's conservatism:

> In a word, Silbermann's system of temperament cannot be maintained under the conditions of present-day practice. That all this is nothing but the truth I call all nonpartisan musicians who are expert in the matter to witness, especially the world-famous Mr. Bach in Leipzig. It is therefore to be wished that that superior man [Silbermann], who has acquired so much honor and fame, as well as a good bit of money, with his excellent art, should change his mind about temperament, improve his otherwise beautiful and well-constructed organs in respect to temperament, and thus

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[30] Sumner, 226.

[31] Louis Michael Nortjé, "J. S. Bach and the Organ School of the High North German Baroque: Registration Authenticity in Recorded Performances" (M. M. diss., University of the Witwatersrand, 1988), 108.

[32] John Brombaugh, "Bach's Influence on Late Twentieth-Century American Organ Building," in *J. S. Bach as Organist: His Instruments, Music, and Performance Practices*, ed. George Stauffer and Ernest May (Bloomington: Indiana University Press, 1986), 45.

[33] Sorge was the author of many theoretical works and musical compositions. Among the latter are a cycle of twenty-four preludes and double fugues in all keys and a collection of works entitled "Clavier-Übung," two collections that compare to similar collections in Bach's production.

> add to his fame the very important portion that is still lacking to it…The 4 [*sic*] bad triads are of a rough, wild, or, as Capellmeister Bach[34] in Leipzig says, barbaric nature intolerable to a good ear.[35]

Dähnert reminds us "it should not be forgotten that none of them [Silbermann's organs], including the big Freiberg organ, has its original meantone tuning as left by the builder."[36]

Silbermann possessed comprehensive knowledge of the properties of various materials that affect the timbres of pipes and he carefully selected specific materials for a desired sound. He knew the properties of various kinds of wood[37] and frequently used wooden pipes for the bottom octave of the Gedeckt and Rohrflöte 8' stops and of some Principal 8' stops if they were inside the case.[38] The remaining octaves of pipes from such ranks as these would be made of metal. He also used wood for the 16' open pipe if it was placed in the case instead of the façade. Wood produces fewer upper partials and—properly scaled—has a stronger fundamental. Silbermann organs tended to be a bit powerful on the bottom end. His metal pipes contained a much higher percentage of tin than was customary with the northern builders. The presence of more tin was one of the factors that contributed to what is often referred to as Silbermann's famous

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34 "The tradition runs that whenever Sebastian Bach observed Silbermann among his select circle of auditors, he used to say to him, in perfect good humor, 'You tune the organ in the manner you please, and I play the organ in the key I please,' and thereupon used to strike off a Fantasia in A-flat major; the contest invariably ending in Silbermann's retiring to avoid his own 'wolf' [the discordant sounds produced by altered intervals]." Edward John Hopkins and E. F. Rimbault. *The Organ: Its History and Construction*, vol. 2. (London: Robert Cocks & Co., 1877). With preface and corrections by W. L. Sumner (Buren: Uitgeverij Frits Knuf, 1987), 176.

35 David and Mendel, 336.

36 Ulrich Dähnert, "Bach's Ideal Organ," *The Organ Yearbook* 1 (1970), 23.

37 Silbermann's expense list for organ at Dresden's *Frauenkirche* included costs for oak, maple, lindenwood and pearwood. (Sumner, 228.)

38 Ibid., 232.

"silvery tone."[39] Other factors that contributed to this special quality were pipes of larger scale and lower wind pressure.

Silbermann's organs were known for their variety of color stops, their easy key action—"as light as a clavichord" or so Silbermann claimed of the organ at Freiberg[40]—and, like those of his Saxon contemporaries, the marked contrast between manuals. In his specifications, Silbermann gave a description of the purpose of each manual and the Pedal. Of the divisions on the organ of the *Johanniskirche* at Zittau, the Hauptwerk was of 'large and heavy scaling,' the Brustwerk, 'delicate and pleasing,' the Oberwerk, 'sharp and cutting,' and the Pedal, 'forceful and penetrating.'[41] He did not hesitate to give more than one manual on an organ an 8' Principal stop, contrary to most other builders of the time, because he could follow his tonal scheme by altering the scale of each. Another of Silbermann's characteristics was his "use of flutes in families: a choir of Spillflöten on the Hauptwerk; Gemshorn and Waldflöte, both tapered, on the Oberwerk; a pair of Rohrflöten on the Rückpositiv."[42]

Silbermann's mixtures had fewer ranks and were not so high-pitched as those of the north German organ builders. The following comment, attributed to Agricola, was made after Bach had been to Dresden to play the new Silbermann organ at the *Marienkirche*: "Genuine Connoisseurs do not find much fault with Silbermann's organs, except for . . . his weak Mixtures and Cymbels, which don't

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[39] This is an interesting description considering that Silbermann in German is, literally, "silver man."
[40] Williams, *New History*, 114.
[41] Sumner, 228.
[42] Stephen Bicknell. "J. S. Bach and the Organ – Part 2." in PIPORG-L [electronic bulletin board], s.l. 28 November 2000; available from LISTSERV@listserv.Albany.edu.

possess enough sharpness and clarity, especially for large churches."[43] Agricola does not name the above-mentioned connoisseurs. But it would seem likely that he would have included Bach as one of the elite since he was studying with Bach at the time. Williams believes that the statement indicates a lack of understanding by Bach of a "basic French principle, namely: the *plein jeu* is merely one of the many colours [sic] of an organ rather than an all-embracing tutti."[44] There is at least one instance—the organ at the Freiberg Cathedral—of Silbermann naming the six-rank pedal-mixture Plein Jeu, a common registrational formula on French organs, as was the Cornet stop that he frequently used. His mutations were French in nature, also. Their pipes were much wider in diameter and, consequently, not as bright as their counterparts in northern Germany. These characteristics are just a few which indicate the influence retained from the years spent with his French-trained brother, Andreas. Although Silbermann had no sons to carry on his organ-building traditions, many who served their apprenticeships with him spread those traditions through much of Germany.

Silbermann's apprentice with closest ties to Bach was Zacharias Hildebrandt (1688-1757). Even though Silbermann has long overshadowed the life and work of Hildebrandt, the importance of his contribution to the organ-building scene during Bach's life is critical for a complete picture in this study. Information about Hildebrandt's early life is sketchy. He was born on the southwestern border of Poland in what we now know as the city of Zębice. He

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[43] Jakob Adlung, *Musica mechanica organoedi* (Berlin, 1768). Translated by and quoted in Ulrich Dähnert, "Organs Played and Tested by J. S. Bach," in *J. S. Bach as Organist: His Instruments, Music, and Performance Practices*, ed. George Stauffer and Ernest May (Bloomington: Indiana University Press, 1986), 16.
[44] Williams, *New History*, 112.

served a three-year apprenticeship in organ building with Gottfried Silbermann beginning in 1713 and continued working in Silbermann's workshop after completing the apprenticeship. Presumably, the sounds of Hildebrandt's organs were in some ways shaped by his relationship with Silbermann.

The parting of Silbermann and Hildebrandt was not amicable and resulted in a legal dispute that remained unsettled until 1724. Peter Williams states that Hildebrandt sometimes "produced organs at a price (and quality) lower than his irascible master's, thereby occasioning a legal quarrel."[45] Whatever the dispute with Silbermann, it did little apparent harm to Hildebrandt's reputation as an organ builder since he received his own title in 1730, Court Organ Builder to the Prince of Saxe-Weissenfels.[46]

Hildebrandt's output is sparse compared to that of Schnitger or Silbermann and the number of his instruments that survive is even more meager. Of fifteen known instruments built by Hildebrandt, eight are considered to be preserved. This term is used to cover a range of situations from "fragments of six stops [which] remain" to the organ at Störmthal—his first independently built organ—where the organ of fourteen stops is mostly in its original state and is in working condition.[47] Two of his instruments have been restored—most recently the organ at the *Wenzelskirche* in Naumberg—and four other instruments are considered worthy of restoration.

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[45] Williams, *European Organ*, 157.

[46] *Grove Dictionary*, s. v. "Hildebrandt."

[47] This is one of the organs that Bach examined and for the dedication of which he wrote Cantata BWV 194, *Höchsterwünschtes Freudenfest.* (Simon Crouch, "*Höchsterwünschtes Freudenfest*: Cantata 194. <http://www.j-s-bach.tmfweb.nl/bespreking/cantatas/194.html>, 1995-2000.)

All but one of Hildebrandt's organs were one- and two-manual instruments, very modest, but still attractive enough to warrant Bach's attention. Late in the 1720s, it is documented that Hildebrandt worked on Bach's own church organ at the *Thomaskirche* in Leipzig. At the same time, he maintained the organ at the *Nikolaikirche*, also in Leipzig, through the 1730s and 1740s.[48] When the *Marienkirche* in Mühlhausen asked for Bach's opinion of their existing organ, he advised that a new organ would be better for them than trying to make repairs on the existing one. Bach recommended awarding the contract to Hildebrandt to rebuild the instrument, a recommendation not adopted by the town council.

The organ built for the *Wenzelskirche* in Naumburg in the early 1740s stands out among Hildebrandt's instruments. In September of 1746, Bach and Hildebrandt's former teacher, Gottfried Silbermann, examined and approved the new three-manual, fifty-three stop instrument. This, the only three-manual organ from Hildebrandt's workshop, was the largest organ in the vicinity. The only larger organs at the time were in Berlin and Magdeburg.

At the *Wenzelskirche*, Hildebrandt used or was required to use the existing case that included a Rückpositiv division. Although certainly a rarity by this time, Hildebrandt stocked it with a variety of 8' sounds plus upperwork that would have created a good balance with the other divisions. There are no solo sounds except those that could be created by using the Nassat. A string ensemble—8' and

[48] Bach is primarily associated with the *Thomaskirche* in Leipzig where he was Cantor, not the organist. But he was overseer of all the instruments in the city and as such would have been not only familiar with the work of Hildebrandt at the *Nikolaikirche*, but also most likely was the person who hired him for that position.

4'—is on the Rückpositiv, as is a Fagott 16' that would be perfect for running bass lines.

There has been much speculation about this instrument and the extent of Bach's influence on it. Bach, in a letter to the Naumburg town council in 1748 recommending his future son-in-law for the position of organist, references an occasion "when my modest opinion was required in connection with the repair of your organ, and was then most kindly found acceptable."[49] It is clear that Bach was familiar with the old instrument in the church. Less clear is Bach's involvement beyond that initial inspection. Did Bach recommend Hildebrandt to rebuild the organ? Was Hildebrandt working from a new specification drawn by Bach? Answers to those questions can only be conjectural. Bach must have approved of Hildebrandt's work in general since Hildebrandt worked on two organs in Leipzig that were under Bach's supervision. As noted previously, Bach had also recommended Hildebrandt for the organ at the *Marienkirche* in Mühlhausen. Furthermore, Hildebrandt was living in Leipzig at the time. Peter Williams, quoting from Dähnert**,** mentions specific stops that he believes to be present because of Bach's influence: a Quintadena 16' instead of Bourdon 16', the 32' pedal reed, the cylindrical Fagott, more string stops than are usually found on a Silbermann organ and the high-pitched pedal stops, among others.[50] These high-pitched pedal stops were used primarily to play solo lines on the Pedal, but as noted earlier, few organists of the time were still interested in playing a *cantus firmus* in the Pedal except for Bach and his students. Perhaps Bach's influence

[49] David and Mendel, 231.
[50] Dähnert, "Ideal Organ," translated by Peter Williams, *Organ Music* 3, 138.

was present in the use of Niedhardt 'temperament" favored by him according to his son-in-law, J. C. Altnikol.[51]

We see Hildebrandt's similarities to Silbermann's style of building, above all, in the structural manner of this instrument. It is primarily in the area of tonal design that Hildebrandt parted company with his mentor. Hildebrandt collected families of similarly constructed stops on the same division. The Naumberg organ contains many families of stops of different pitches including a set of conical flutes at 8', 4' and 2' pitches, and conical strings at 8' and 4' pitches on the Hauptwerk. Other such groupings include Röhrflöten at 8', 4' and 2 2/3' pitches on the Rückpositiv and tapered strings on the Pedal at 16' and 8' pitches.[52] He also used Schnitger's elements of design—such as higher pitched mixtures and mixtures consisting of more ranks than Silbermann's—more in the tradition of a Schnitger instrument than one by Silbermann. Yet another instance where Hildebrandt follows Schnitger's taste as opposed to that of Silbermann was by placing the Quintadehn 16' and 8' on separate divisions. Also worth noting is the Unda maris 8' present on the Oberwerk, an addition beyond the original contract. A gentler version of the present-day Celeste stop, this may be the first appearance of an Unda maris stop on a German Baroque organ, albeit late in the Baroque period.[53]

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[51] Christopher Kent, "Temperament and Pitch," in *The Cambridge Companion to the Organ*, ed. Nicholas Thistlethwaite and Geoffrey Webber (Cambridge: Cambridge University Press, 1998), 48.

[52] Although it was necessary in this situation with the existing case, Hildebrandt—like Silbermann—never worked with Rückpositivs in any of his new organs.

[53] Unda marises and Celestes were tuned slightly sharp or flat to a specific rank of pipes or to the organ as a whole. This would produce an undulating effect when drawn with other stops. Another undulating device, the tremolo, was a mechanical device that disturbed the wind supply.

Nevertheless, Hildebrandt presents an organ in Naumberg that is well balanced, with each division built on a foundation of principal stops analogous to Silbermann's instruments. It is an organ "remarkable for its strength of tone (especially in the bass) allied to brilliant mixtures and solid reeds."[54] Perhaps a quote that aptly describes and sums up his work is "Hildebrandt's ability to draw on influences taken from Silbermann, Hamburg and contemporary trends in Thuringian organ building parallels Bach's own genius for synthesizing disparate styles."[55] Higher praise is difficult to attain than a comparison to Bach in any of his numerous realms of ingenuity.

[54] Nicholas Thistlethwaite, "Origins and Development of the Organ" in *The Cambridge Companion to the Organ,* edited by Nicholas Thistlethwaite and Geoffrey Webber (Cambridge: Cambridge University Press, 1998), 13.

[55] David Yearsley, "The Organ Music of J. S. Bach," in *The Cambridge Companion to the Organ*, edited by Nicholas Thistlethwaite and Geoffrey Webber (Cambridge: Cambridge University Press, 1998), 245.

Chapter 3

The General Nature of Organ Stops

Throughout the history of organ registrations, most of the sounds on organs were imitative of instrumental sounds. As Barbara Owen states, "Most of these [new pipe sounds] were frankly imitative of existing ensemble instruments of the time [the Baroque period]. The 'orchestral organ' is by no means a twentieth-century concept."[1] According to Laurence Dreyfus, "The organ already comprised a metaphorical orchestra, seen in the range of its resources as well as in the names of orchestral instruments given to many of its stops."[2] The only sound original to the organ is that of the principals. All others imitate another instrument or sound.[3] The uniqueness of principal sounds, however, has not kept them from being compared to sounds with which most non-organists are familiar. As Nortjé observes,

> When one bears in mind the strength and popularity of vocal music in the Middle Ages and the Renaissance, it is of little wonder that the oldest stop of the organ, the principal, was strongly influenced by the speech articulations of the human voice. As these pipes strove to imitate the human voice, they had a distinct vocal quality, especially those at foundation pitches of 16-, 8-, and 4-foot.[4]

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[1] Barbara Owen, *The Registration of Baroque Organ Music* (Bloomington: Indiana University Press, 1997), vii.

[2] Laurence Dreyfus, "The Metaphorical Soloist: Concerted Organ Parts in Bach's Cantatas," in *J. S. Bach as Organist: His Instruments, Music, and Performance Practices*, ed. George Stauffer and Ernest May (Bloomington: Indiana University Press, 1986), 172.

[3] Many organs of the Renaissance and Baroque periods had novelty stops including whistles and birdcalls.

[4] Nortjé, 72.

Since everyone hears or interprets sounds differently, there is also the author and organist, John David Peterson, who likens the sound of principals to those of strings:

> it is a well-voiced principal which can best match the intensity and flexibility of a bowed stringed instrument. Two or three 8' stops, presumably including a principal, do produce a sound very much like that of a half-dozen strings played in unison.[5]

Perhaps one of the earliest efforts at imitation on the organ occurred with the Zimbel stop. Curt Sachs—in his book about musical instruments—writes about a "shallow, cup-shaped bell without a clapper, called *cymbalum* in Medieval Latin, and *zimbel* in Middle High German. . . ."[6] These "bell" sounds could be tuned at different pitches and then, grouped in clusters, played with mallets. "The texts and the iconography [of the twelfth century] reveal that the combination of organ and cymbalum was particularly popular."[7] An indication of the popularity of this particular sound is evident by looking at how frequently the Zimbel appears on specification lists. Thirty-eight organs—very small positives that were second instruments in the church are not included in this number—have been considered in this paper. Twenty-four of those organs have at least one Zimbel stop, and many of them have Zimbels on second and third divisions. At the *Liebfrauenkirche* in Halle, the three-manual organ had a Zimbel stop for every keyboard and one in the pedal division.

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[5] John David Peterson, "Some Thoughts on the Sound of the Organ," *The Diapason*, 72nd yr., no. 4, Whole No. 857 (1981): 16.

[6] Curt Sachs, *The History of Musical Instruments* (New York: W. W. Norton, 1940), 279.

[7] Jean Perrot, *The Organ from Its Invention in the Hellenistic Period to the End of the Thirteenth Century*. Translated by Norma Deane (London: Oxford University Press, 1971). Originally published as *L'orgue de ses origines hellénistiques à la fin du XIIIe siècle* (Paris: A. & J. Picard & Cie, 1965), 275.

Early flute sounds were more like those of recorders—called Blockflutes on the organ—than those of today's orchestral flutes.[8] Speaking of recorders and flutes, Willi Apel notes "that in [the music of] Bach and Handel the plain name *flauto* still invariably meant the recorder, the transverse flute being called *flauto traverse*. . . . "[9] The Flöte Traverso is the organ stop imitating the orchestral flute of Bach's time as well as that of today. The orchestral flute has a horizontal—traverso—cylindrical body that is closed at the upper range of the instrument. The introduction of the Traverso to the organ coincides with the introduction of the actual instrument into the orchestra near the end of the Baroque period.[10]

Reed sounds have a history of imitation that started before the Renaissance, when music was frequently played by a consort or a family of like instruments. Davidson notes that Renaissance organists thought in these terms based on the number of stops, especially reeds, named for the instruments which they imitate."[11] This would certainly seem to be true of the organ builders of the period. It would be quite logical that, in an effort to expand the sound possibilities of the organ, builders would first try to replicate familiar sounds, those heard from other musical instruments. Indeed, as Nortjé notes, "Many organ stops (mostly flutes and reeds) bear the names of Renaissance and Early Baroque consort instruments, e.g. Blockflöte, Regal, and Ranckett . . . [They]

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[8] Samuel Baron, "J. S. Bach: The Flauto and the Traverso," in *Johann Sebastian: A Tercentenary Celebration*, ed. Seymour L. Benstock (Westport: Greenwood Press, 1992), 11.
[9] *Harvard Dictionary of Music*, 2nd ed., s.v. "flute."
[10] Christiansen, 14.
[11] Davidson, 16.

were constructed to approximate the tonal qualities of their models."[12] In his assessment of Praetorius' texts on the organ,[13] Bunjes writes that

> because of his frequent and quite consistent reference to orchestral instruments, it seems that Praetorius looked upon most, if not all, reed voices as imitative counterparts of mouth-blown prototypes, and expected the lingual [reed] voices of the organ to exhibit a certain degree of fidelity to the tone of their orchestral corollaries.[14]

A significant goal for organ builders appears to have been to develop organ stops that would compare favorably with their instrumental counterpart. Silbermann expressed great pleasure when his newly developed Chalumeau (Schalmei) stop in the Dresden *Frauenkirche* organ received a quite favorable comparison to the actual instrument. In a letter to an organ consultant, Silbermann makes the following comment**:**

> For the organ of the Frauenkirche in Dresden luck was so favorable in the invention of a *Chalumeau* that nothing more realistic could be heard, and it was not discernible whether the Dresden virtuoso on the instrument, Mons. Wilhelmi, was playing or whether the sound was emanating from the organ.[15]

Praetorius also mentions other organ sounds that could sound like the human voice. Bunjes, in his study, notes that

> attempts to imitate the sound of the human voice by means of Regal pipes are so recorded by Praetorius. He [Praetorius] mentions the Jungfrauregal and Kornettregal as species suitable for this purpose.[16]

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[12] Nortjé, 72.

[13] In 1618, Michael Praetorius (1571-1621) compiled *Syntagma musicum*, a three-volume encyclopedic treatise on music. The second volume (*de Organographia*) describes musical instruments that were in use during his lifetime, including engravings showing how they looked and how they were played. He also described the organ of the Gröningen Court chapel, built by David Beck and completed in 1596.

[14]Paul Bunjes, *The Praetorius Organ* (St. Louis: Concordia Publishing House, 1966), 719.

[15] Harmon, 65.

[16] Bunjes, 721.

The first, Jungfrauregal: "when used together with other voices and registers in the Pedal, (. . . gives the effect) of a maiden trying to sing bass." Thus the reed stop was appropriately named 'Young-Woman Regal.'[17] In the instance of the Kornettregal at either 4' or 2', "its tone resembles quite remarkably and faithfully that of the human voice."[18]

Information regarding the imitation of string sounds is interesting because of the multiple facets covered. In addition to imitating a specific string instrument, organists of the late Baroque period believed they could imitate the sound of a bowed string by using specific registrations. Indicative of his awareness of imitative organ sounds, Praetorius wrote, "the 'klein Regal uff [*sic*] 4 Fusz Thon' [small Regal at the 4' tone] when combined with the 'Quintadehna uff 8 Fusz thon' [Quintadena at the 8' tone] . . . sounds similar to a violin."[19] Writing about registrations in Bach's time, Nortjé says, "Typical of an eighteenth-century bass-line on the pedals, the Subbass 16' is added to the Oktave 8', a practice paralleled in the lower string sections of the Late Baroque orchestra."[20]

If the organist did not have access to specific string stops on his instrument, he then looked for combinations of stops that would emulate strings. Johann Freidrich Agricola (1720-1774)—a theorist, organist and student of Bach —praised the "effect of a bowed-string sound given by the Flaut travers 16' in

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[17] Ibid., 687.
[18] Ibid., 681.
[19] Michael Praetorius, *De Organographia* (Wolfenbüttel, 1619), quoted in Louis Michael Nortjé, "J. S. Bach and the Organ School of the High North German Baroque: Registration Authenticity in Recorded Performances" (M. M. diss., University of the Witwatersrand, 1988), 56.
[20] Ibid., 101.

running basses."[21] Organist Johann Friedrich Walther, writing in 1727, had a parallel idea. He wrote that a "Gemshorn 8' produces with the Principal 16' a fine bass which, when the pedal keys are depressed rapidly, sounds as if a Violon of 16-foot pitch were being bowed."[22] Another quote of Walther's expresses the same view:

> This stop (Salicional 8) is of delicate voicing; however when the Fugara 4' is drawn along with it and running passages or arpeggios are played, supported by a pedal foundation of Principal 16' and Gemshorn 8' in slow intervals, it sounds as if a violin or viol di gamba were being bowed.[23]

There are four families of tone qualities in North German Baroque organs: principals, flutes, strings and reeds. These four families of stops are constructed using two different techniques called flues and reeds. Principals, flutes and strings are made using flue pipes. The flue is the means by which wind, under pressure from the wind chest, passes to the upper lip of the pipe, causing a pitch to sound. Reed pipes are sounded when air strikes a metal "reed" causing it to vibrate. Larger organs had all four families of tone. Smaller ones were likely to be more limited in their range of color. As a result of size limitations, strings might be omitted since they took up more space in an organ case than a stopped flute. In addition, they were not an essential color.[24] Members of the reed family, too, would likely be eliminated or severely curtailed in smaller instruments because they were more costly than flues and because of the difficulty of tuning

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[21] F. W. Marpurg, *Historische-kritische Beyträge zur Aufnahme der Musik* 4 (Berlin, 1758-9), translated by and quoted in Williams, *Organ Music* 3, 135.
[22] Thomas Fredric Harmon, *The Registration of J. S. Bach's Organ Works* (Amsterdam, 1971), quoted in Nortjé, 86.
[23] Ibid**.,** 84.
[24] Flutes and principals comprise the most important sounds on the organ since most registrations involve their use.

them, particularly in villages. Many small organs were in remote locations, far from anyone who could tune and maintain the reeds.[25]

It is easy to assume that organists would have been expected to have the ability to perform simple maintenance on their instruments. But as is the case today, trained organists were frequently not available, creating situations where playing for Sunday services in a village fell to a person with limited knowledge of the instrument. In his *Orgelprobe*, Werckmeister writes about this problem, lamenting the lack of initiative or ability of organists to take care of their instruments. He adds that such abilities should be considered important in hiring organists.

> It is certainly not to be condoned that many organists, out of vanity or fear or laziness refuse to move so much as one adjustment screw at the keyboard after a weather change; or to hook back into place a loose tracker; or to merely remove a speck of dust or dirt [[26]] that may have gotten into this or the other reed pipe, particularly as it is impossible in most places to have an organ builder available on call. Therefore, it would be a good thing if an organist, in the absence of a builder, could repair minor defects, a qualification which many reasonable people consider mandatory for an organist.[27]

Although Werckmeister's comment was particularly applicable to village organists, it may well have been meant also for organists in churches of larger towns.

Stops at the 8' or unison pitch are the best ones for determining the color or timbre of particular sets of pipes. Open pipes at this pitch retain their shape

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[25] Of all the organ stops, those in the reed family are most susceptible to weather changes. Hence, they are the most difficult to keep in tune with the rest of the instrument.
[26] Removing a speck of dust would naturally involve tuning that reed again.
[27] Werckmeister, 63.

and, consequently, their timbre all the way to the top of the keyboard. All other kinds of pipes lose their individual colors in the upper ranges of the keyboard because—at some point—they become open and cylindrical. One would not expect to find so much color variation at the 2' pitch as at the 8' pitch because a 2' flute, for instance, always becomes open and cylindrical as it ascends, no matter what the original shape. In addition to matters of construction, which affect characteristic pipe sounds, there is also the matter of the ability of the listener to hear qualitative differences in sounds. According to acoustician Wilmer Bartholomew, any unison pitch has a limited range of color characteristics that the human ear can discern. The color of stops is most easily discerned at the 8' pitch, in the middle of the manual.[28]

Being the loudest, the family of principals provides the primary tone color of the organ. Principals are open flue pipes of moderate diameter. They are available throughout the organ from the 32' pitch in the Pedal to the highest mutations on the keyboards. Paul Bunjes refers to principals as

> being certainly the most unique and native tone the organ possesses. . . . Among the voices of the organ, the Principals are definitely the workhorses, providing foundation, fullness, and brilliance in all combinations in which they properly occur.[29]

Members of the flute family are also flue pipes that have a variety of construction techniques. They can be open or stopped, wooden or metal, wide or narrow, conical or cylindrical or—in the case of the Spillflöte—cylindrical for the first half of the length, then becoming conical. Each method of constructing flute

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[28] Wilmer T. Bartholomew, *Acoustics of Music* (New York: Prentice-Hall, 1945), 201.
[29] Bunjes, 145.

pipes produces a unique sound. The Schnitger organ at the Jacobikirche in Hamburg includes ten different flute colors and, of those, five colors each are found on two different divisions.[30] While this number of flute stops may be somewhat unusual, flutes are important for the variety of colors they bring to the palette for registering the organ. Commonly found flute sounds of the Baroque period, from 16' to 2' pitch, are Bourdon, Quintaton, Gedeckt, Rohrflöte, Hohlflöte, Nachthorn, Spitzflöte and Blockflöte.

Some names denote the construction of the pipe. Rohr, for example, indicates a stopped pipe, in which the stopper has been pierced to allow a narrow tube to pass through, altering the sound from that of a simple stopped pipe. Spitz refers to the conical shape of the pipe, a gentle tapering from the foot of the pipe to its top. Other names refer to sound quality: Flöte douce translates as "sweet or soft flute," Waldflöte, as "forest flute." Possibilities seem limited only by the builder's imagination and by tradition.

The third classification of flue pipes is the string family, "a species of narrow-scaled flue pipes voiced to produce an overtone series similar to that of a bowed string."[31] As with flutes, there is a considerable range of pipe widths, from the very narrow Salicional to the wide-scaled Gemshorn.[32] Pipe shapes are varied as well. As a flue, the earliest and most commonly found string stop is the Viola di gamba, named after the string instrument.[33]

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[30] See specifications p. 140.
[31] Williams and Owen, 332.
[32] The Gemshorn is a hybrid stop possessing the qualities of flute and string tones. The string quality seems more dominant in low registers while the flute quality prevails in higher ranges.
[33]The Viola di gamba was also a reed stop, primarily in the seventeenth century. But the organ at St. Bavo's in Haarlem, the Netherlands—which was not built until 1738—also has a Viola di gamba stop that is of reed construction.

Those pipes that are not in the flue category are reed stops that have a thin, flexible brass tongue within the pipe near the bottom. When air under pressure from the wind chest passes through the pipe and causes the tongue to vibrate, a sound is produced with the pipe acting as a resonator. Primary reeds are usually loud ones.[34] They are considered to be ensemble sounds and are used to enhance the *plenum*. *Plenum* is most often considered to mean "full organ." (This term will be discussed at length in chapter 4.) The primary stops of the reed family include Trumpets, Fagotts, Dulcians, Posaunes and Bombardes. The latter two stops are usually low-pitched trumpets. Secondary reeds are those used essentially for solo purposes, such as many types of Regals, Krumhorns, Schalmeis and Oboes.

Mutations are stops, of principal or flute construction, that provide a great source of color for the organ. Dating back to the sixteenth century, mutations are based on the overtone series—sounding at the fifth, third and octave—reinforcing those harmonics of the unison stop with which they are combined. "The term 'mutation' is a fairly descriptive one because voices, so named, have no compelling reason for independent existence except in so far as they, through combinations, influence, change or mutate the tone color of other individual or collective foundational voices."[35] Most mutations consist of a single rank, although there are occasional multi-rank mutations.[36] Mutations are commonly

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[34] Because of the sound quality and dynamic of any given reed pipe, what would be a primary reed on one organ might act more like a secondary reed on another organ.
[35] Bunjes, 178.
[36] Multi-rank mutations can be thought of as compound stops; however, unlike mixtures, they do not break back—repeat the pitches of the same set of pipes—as they move higher on the keyboard.

recognized by such names as Larigot, Nasat, Quinta, Sifflöte and Tierce. Multi-rank mutations bear such names as Sesquialtera—a combination of pitches at the 2 2/3' and 1 3/5' levels—and Tertian—using tones at 1 3/5' and 1 1/3' pitches. The harmonics in any given stop sound simultaneously. When used with foundation stops in various combinations, mutations offer very effective solo combinations.

A final category of sounds is that of the mixture, which belongs to the family of principals. A mixture with a wealth of ranks—originally consisting of sub-unisons, unisons, fifths and octaves and called a *blockwerk*—constituted a large organ in gothic times. Mixtures have maintained their prominence to the present day. From the Renaissance forward, mixtures usually sounded only fifths and octaves above the unison pitch. Because mixtures consist of only high-sounding pipes, it is necessary for this collection of pipes to repeat—break back—as it gets higher on the keyboard. "They are a gathering together of relatively high-pitched ranks of pipes which represent select overtones properly associated with foundational voices."[37] The number of ranks in a mixture could vary from two to perhaps more than fifteen. Buxtehude's church in Lübeck had a single Mixture of fifteen ranks. Most often simply called Mixture, other frequently found names for that stop in Germany were Scharff, Cimbel and Rauschpfeif.

With the knowledge of organ pipes and colors that has been discussed, it is useful and practical to learn more about specific colors available to Bach. From the Table of Organ Stops found in Appendix A (pp. 110-123), the following

[37] Bunjes, 207.

generalities can be made. This list of stops is compiled from the specification lists of organs with which Bach is known, or is likely, to have been associated (Appendix B, pp. 124-162).

Within the flute family, there are twenty-seven different names assigned to the stops. The appearance of a large number of flute names appears to be the peak of this particular phenomenon, the number of names having gradually increased since the introduction of the flute to the organ in the sixteenth century. My study of organs built in the second half of the eighteenth-century reflects a severe reduction of distinctly named flute stops from twenty-seven to eleven. These eleven flute sounds—Bourdon, Coppel, Flauto traverso, Flöte, Gedeckt, Hohlflöte, Quintadena, Rohrflöte, Sifflöte, Spitzflöte and Waldflöte—are the most common flute names still in use today.

A similar situation exists with reed stops. Their numbers peak—thirty different stop names—during Bach's lifetime even though a substantial number existed at the beginning of Bach's lifetime—twenty-six. The number was halved to fifteen in the second half of the eighteenth century. A number of the stop names that disappeared were those named for and designed in imitation of Renaissance instruments—Sertin, Zincken, Ranket, Sordino—leaving those still commonly used today—including Trumpet, Oboe, Schalmei, Fagott, Krumhorn, Bombarde, Vox humana and Posaune.

The only string stops found on approximately two dozen organs prior to those known by Bach are on three of Arp Schnitger's instruments. Although two of those three organs have more than one manual, and are very large instruments

for their time, each organ has only a single string stop. Of the organs studied for this paper, the earliest string stop, a Salicional 4', is found on the organ, as first encountered by Bach, at the *Blasiikirche*, Mühlhausen.[38] Although it is known to precede the Bach era, the precise date and builder of this instrument is not known.

It was Bach's destiny to spend the first thirty-two years of his life—1685 until 1717—living and working in the Thuringian area of Germany where

> one of the most remarkable characteristics of organs built in the . . . region during J. S. Bach's lifetime is the rather regular inclusion of stops of the string family. . . . As early as the turn of the eighteenth century it seems to have been common to include either an 8' string stop in a manual division or a 16' Violone in the Pedal or both.[39]

It was especially fortunate that the great experimenter in combining stops was in the right place at the right time to take advantage of these fairly regular additions to the palette of organ sounds.

When comparing Bach's organs to those in the second half of the century, we note that the number of differently named string stops remained almost unchanged—Viol di Gamba, Salicional, Salicet and Violone; however, the pitches at which these stops were used changed. Most of the 4' string sounds, as well as the single 2' string, were gone by the second half of the century. This resulted in string colors limited primarily to the 8' pitch, reducing their ability to contribute to any brightness of sound but allowing their individual timbre to be heard. The exception to that statement is the Pedal Violone 16'. In addition to a particular

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[38] This is the organ for which Bach left the most detailed information indicating his views on organ construction and specifications. See chapter 1, pages 6-12.

[39] Robert Cornell, "The Development of String Sound in the Thuringian Organ of the Eighteenth Century," *Early Keyboard Studies Newsletter* 4 (July 1991): 6.

orchestral color, the Violone gave more pitch definition and greater clarity than a prinicipal could have provided.

Hybrid sounds, those with borrowed characteristics belonging to more than one tonal family, were added to the existing tonal landscape beginning in the sixteenth century. The Gemshorn was the best-known hybrid in the Baroque period. Its sound is somewhere between that of a flute and a string.[40] During Bach's life, the Geigen Principal and Geigen Regal were added to the category of hybrid stops. Geigen is the German word for violins, so the newly created sounds were string-toned versions of a principal and of a Regal.

There was also a change in the makeup of compound stops. During the period from 1700 to 1750, builders used fewer ranks of pipes in their mixtures. Mixtures of fifteen and more ranks became a thing of the past. This change—like the situation with strings—resulted in a sound that was not as bright as that available in the fifteenth, sixteenth and seventeenth centuries.

A compound stop of a different nature was the Unda maris, a type of sound that has been called "celeste" (heavenly) from the nineteenth century to the present. The sound is created by tuning a rank of pipes either flat or sharp to another rank of pipes that was in tune with the rest of the organ.[41] The result of combining the two out-of-tune ranks is an undulating sound, somewhat like a very slight vibrato on a string instrument, depending on how little the celeste rank was out of tune. The celeste sound was known in Italy by the mid-1600s and traveled north to Central Germany in time to appear on the Hildebrandt organ at the

[40] See note 32 above.
[41] Williams and Owen, 289.

Wenzelskirche in 1747. Silbermann also added the stop to the *Sophienkirche* at Dresden in 1747.

Another example of a compound stop that is very unusual is the "flute celeste"—made of two Flöte Douce ranks. This stop is found on two Bach-related organs, the *Johanniskirche* at Gera and the *Schlosskapelle* at Altenburg. On these two organs—constructed by two different builders—a single manual stop consisted of two complete sets of pipes. One set of pipes sounded the 8' pitch and the other set, which was tuned either slightly flat or sharp, sounded an octave higher. Of course, one of the most common examples of a celeste sound of any age comes from an out-of-tune organ. But the above example using only two stops together must have had a charming effect.

Organ building in the first half of the eighteenth century produced an overabundance of adjectives attached to stop names in an effort to better describe the sounds produced. There are approximately two dozen of these modifiers on the Bach organs covered in this paper which all refer to the quality of sound or to a manner of construction, words, for example, such as hell (light), lieblich (lovely), offen (open) and still (quiet). All of these specially-assigned adjectives were an effort by builders to set their instruments apart from those of other builders and to qualify a basic sound. By giving a special twist to a common stop—Gedeckt, for instance—and re-naming it, the builder now had a special, signature sound. This profusion of adjectives, and resulting wealth of stop names, suggests far more color than organists on either side of Bach's life encountered. Of the descriptive words discovered in these Bach organs, only six are still

commonly used in organ building today—Lieblich (lovely), Geigen (violins), Quer (crosswise), Rausch (rustle), Schweizer (Swiss) and Wald (forest).

All of these tonal changes and colors are interesting and informative to note. Just as Bach's organ compositions were the culmination of a wealth of music for that instrument, so organ building—along with experimentation in sounds—also seems to have reached a peak during his lifetime. Curt Sachs saw the decline in instrumental variety after Bach as the result of a change in taste from polyphonic music to music of a monodic style. He states that the first hint of a change came with the

> dismissal of the majority of those oboelike [*sic*] instruments. . . . As they had no 'expression,' no dynamic elasticity, and were not able to 'overblow' into a higher octave, they were not appropriate to the new style. All at once rankets, cromornes, schryari, rauschpfeifen, bagpipes were put aside. Only bassoons and, especially in France, the smaller shawms or oboes were preserved, and with them the flutes.[42]

In Germany, it was not until the end of the nineteenth century—after all the excesses and experiments in organ building—that organs found their way out of decline.[43]

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[42] Sachs, 352.

[43] Experimental designs included cone chests, free reeds, double pedalboards, Venetian shutters, high wind pressure and keyboards designed for triple touch. (For additional information, see Williams and Owen, pp. 153-156.)

Chapter 4

Registrations Indicated by Bach in Association with Forms

Although the history of the organ begins in the third century B.C., the question of how to register organ music was first documented only in the late fifteenth century. Considering Bach's stature as an organist and the quantity of music he wrote for the instrument, much discussion has rightly focused on the registration of his music. There are, however, few written indications regarding Bach's ideas about registering his music or about registration in general during his time. This lack of information is due, in part, to the fact that more variety existed in German organs than elsewhere in Europe in the 1700s.[1] Obviously, Bach had a flair for creating sounds on the organ which impressed listeners with that aspect of his talent, in addition to his many other gifts as a musician.[2]

Bach's most frequently suggested registration is that of *plenum*. This term appeared in his compositions in different guises such as "*in Organo pleno*" and "*pro Organo pleno.*" Bach recommended this registration most often in his free works—preludes, toccatas and fugues. Indeed, there are at least fourteen of his freely composed organ works with the *plenum* designation either in autograph copies or early manuscript copies.

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[1] In France, for example, almost all styles of organ building emanated from Paris, so the style of the French Baroque organ and French registrations were quite standardized.

[2] For complete quote, see p. 4.

Allabreve in D, BWV 589
Fantasia and Fugue in g, BWV 542
Fugue in g, BWV 578
Passacaglia and Fugue in c, BWV 582
Prelude and Fugue in a, BWV 543
Prelude and Fugue in b, BWV 544
Prelude and Fugue in c, BWV 546
Prelude and Fugue in C, BWV 545
Prelude and Fugue in C, BWV 547
Prelude and Fugue in d ("Dorian"), BWV 538
Prelude and Fugue in e ("Wedge"), BWV 548
Prelude and Fugue in E≅ ("St. Anne"), BWV 552
Prelude and Fugue in g, BWV 535
Prelude in a, BWV 569

There are also at least twelve chorale preludes—chorale fugues, fantasias, preludes with an instrumental texture and those in *stile antico*—that also carry the *plenum* designation.[3]

Aus tiefer Not, schrei ich zu Dir, BWV 686
Fuga sopra il Magnificat, BWV 733
Fughetta super Dies sind die heil'gen zehn Gebot', BWV 678
Herr Christ, der ein'ge Gottes Sohn, Fughetta, BWV 698
Jesu, meine Freude, BWV 713
Komm heiliger Geist, Herre Gott, BWV 651
Komm, Gott Schöpfer, heiliger Geist, BWV 667
*Valet will ich dir geben,*BWV 736
Vom Himmel hoch, da komm' ich her, BWV 606
Wer nur den lieben Gott lässt walten, BWV 642
Wir Christenleut', BWV 612
Wir glauben all' an einen Gott, BWV 680

[3] George Stauffer, "Bach's Organ Registration Reconsidered," in *J. S. Bach as Organist: His Instruments, Music, and Performance Practices,* ed. George Stauffer and Ernest May (Bloomington: Indiana University Press. 1986), 197-198.

Today, *plenum* is most often considered to mean "full organ," but there were various definitions of that term during the Baroque period. A fuller discussion of this term, then, is necessary in order to better understand its application to Bach's organ music.

The full sound of the organ is known as *organo pleno* in Italian, *plein jeu*[4] in French and *volles Werk* in German. Although there are numerous ideas about which specific sounds comprise the *pleno*, they probably constituted the *blockwerk* of early organs. The *blockwerk*—an eighteenth-century term—refers to the undivided chest of the medieval organ,[5] and was literally a "block" of sound whose stops could not be isolated from each other.[6] Consisting of principal stops sounding at the sub-unison, unison, fifths and octaves, the *blockwerk* can be likened to the sonorities produced by early *organum*.[7] Jean Perrot writes, "The organ itself was destined to lend its name to a particular style of vocal writing. . . . This fact . . . is of vital interest . . . because of the obvious analogy between the new technique of vocal writing and the music played on the organ. . . . "[8]

A brief description of how pipes respond to the wind necessary to produce tones—using Example 4-1 on page 61—will help in understanding the change that made it possible for builders to begin separating the *blockwerk* into individual

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[4] According to Williams, the *plein jeu* was just one color on the organ in France and did not dominate, as did the *volles Werk* in Germany.

[5] Williams and Owen, 295.

[6] Ibid.

[7] According to Williams, "the most useful description of the sound of a *Blockwerk* is [Michael] Praetorius's (*Syntagma Musicum*, ii, 2/1619) of that at Halberstadt (1357-61): 'The large Praestants [Principals] and the low manual compass, which does not rise high enough for lightness of sound, caused together a deep coarse rumbling as of a dreadful distant thunder, while the many-rank Mixture gave an exceeding shrillness, strong, loud and powerful.'" (Williams, 1966, 18.)

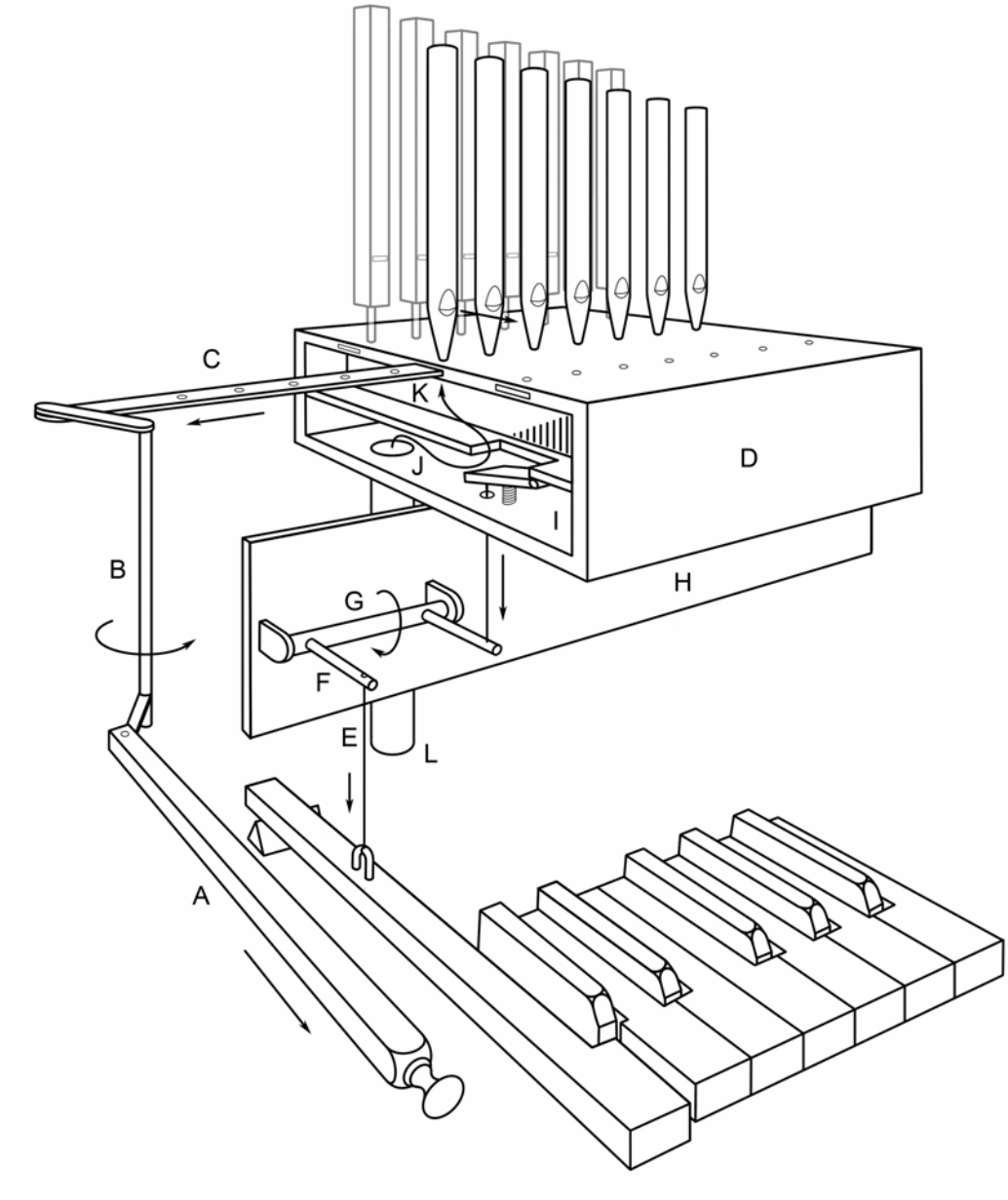
[8] *Organum* was a style of early music that moved in intervals of fourths, fifths, octaves and sub-octaves against a given *cantus firmus*. (Perrot, 287.)

sounds. One of the necessary components of a pipe organ is that which allows the wind—via the wind trunk (L)—to reach the pipes. The transfer of wind to the pipes was made in Baroque organs, as well as earlier ones, by way of a wind chest.

The chest (D) was a rectangular box, divided into vertical and horizontal sections. The horizontal divisions, called channels or grooves (K), equaled the number of keys on the keyboard. Pipes were mounted on the top section of the chest, partially through holes that accommodated the toe of the pipe. A perforated piece of wood (C), located below each row of pipes, controlled the flow of wind. This device is called a slider, hence, the name of this chest, a "slider chest." Another shallow section located beneath this top section, was called the pallet box (J).

With a stop knob (A) activated and a key depressed, a pallet (I) was opened by means of a tracker (E).[9] This action allowed air in the lower part of the chest, under pressure from the bellows, to flow through the pallet box. The opened pallet completed the connection of key to pipe, causing the pipe to sound. The development of rollerboards (H) permitted the trackers, which connected the keys to the pallets, to transmit the action laterally. By placing the sliders "at right angles to the grooves, organ builders gave players the means of shutting off groups of pipes. Only after 1500 did 'stops' come to be thought of as bringing registers on rather than shutting them off."[10] The increasing size of organs and

[9] A tracker is a thin, flexible strip, usually made of wood. It is attached at one end to the key and at the other to the valves or pallets in the windchest.
[10] Thistlethwaite, 5.



Example 4-1: **Key- and stop-mechanism for tracker organ**. (A) stop knob; (B) trundle (moves motion from stopknob to slider); (C) slider; (D) chest; (E) tracker; (F) roller arm, (G) roller; (H) rollerboard; (I) pallet; (J) pallet box; (K) groove; (L) wind trunk; (M) bellows [wind source].

the introduction of new sounds, coupled with the breakup of the *blockwerk*, led to disparities in what actually constituted an *organo pleno*.

Esias Compenius, an organ builder who died in 1617, provided one of the first descriptions of *organo pleno*. Compenius believed that the *pleno* should contain principals only: "do not include Gedackt stops in the *pleno*" and that music played on the *pleno* should not be contrapuntal: "play slow chordal passages, not quick coloratura."[11] This is one of the earliest instances in which a specific registration is associated with a particular manner of playing.

Andreas Werckmeister (1645-1706), an organist by trade, was also an influential music theorist of his time and was recognized for his expertise on organ construction.[12] Supportive of Compenius' concept of the *pleno*, Werckmeister's stance on registration and the *pleno* was quite specific. "For the benefit of the uninitiated and of beginners, however, I might unambiguously state that one does not like to draw together two stops of identical pitch that are dissimilarly scaled."[13] This comment was made in response to the adverse conditions brought on by an inadequate wind supply, a common malady among organs of the time. In his English translation of Werckmeister's *Orgelprobe*, Gerhard Krapf, for instance, notes that Werckmeister's admonition also "implies that an ill chosen registration uses more than its fair share of wind."[14] In addition, using two ranks of pipes of the same pitch would only heighten the tuning

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[11] F. Blume, *Michael Praetorius und Esaias Compenius: Orgeln Verdingnis* (Wolfenbüttel/Berlin, 1936). Translated by and quoted in Williams, *Organ Music* 3, 163.
[12] Stinson, 36.
[13] Werckmeister is referring—for example—to flutes, which are ordinarily of wide scale versus principals of narrower scale. "For a wide pipe will soon miss the pure air, will rebel and become hostile to the narrow-scaled pipes." (*Orgelprobe,* 26, 58.)
[14] Ibid., 59.

problems caused when pipes—of different scale and close to each other on a chest—are played together. Also of consideration, the harmonics of one stop would blend with those of another stop. Such blending of the two sounds would reduce the individuality of each, creating a new one instead. Werckmeister also credited organists with a sense of good judgment by using their ears,

> assuming that everybody endowed with a normal sense of hearing can easily perceive how well one [stop] goes with another. . . . I consider such a discussion [how to choose stops] superfluous. . . . A good ear serves best in this matter. . . . Not every registrational approach works with all stops. Therefore, discerning musical judgment and a good ear are the best means.[15]

Ideas about the make-up of *organo pleno* changed in the eighteenth century as new developments in the construction of organs emerged. In a treatise written by organist, composer and theoretician Johann Mattheson (1681-1764), Mattheson was quite specific regarding the composition of a *plenum*. To it

> belong the principals, Sorduns, Salicionals or Salicets (Weiden-Pfeiffen), Rausch-Pfeiffen, the Octaves, the Quints, the Mixtures, the Scharfs, the Quintadenas, the Zimbels, the Nasat, the Terzians, the Sesquialteras, the Superoctaves and the Posaunes in the pedal, not in the manual for the Posaunes are reed pipes which are excluded from the full organ in the manual. This is done because the Posaune would rattle too much at a high pitch . . . [but] sounds splendid in the pedal because of the depth of its tone.[16]

Notice that Mattheson says that all these stops "belong" to a plenum, not that the plenum consists of all these stops used together. In other words, a *plenum* could be represented in a variety of ways. A *plenum* that started out as principals-only

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[15] Werckmeister, 58-60.

[16] Johann Mattheson, *Der volkommene Capellmeister* (Hamburg, 1739). Translated by and quoted in Quentin Faulkner, "Information on Organ Registration from a Student of J. S. Bach," *The American Organist* 27, no. 6 (1993): 61.

in the seventeenth century now included stops that imitated the sound of strings—Salicional, Salicet—flutes and an assortment of mixtures and mutations in the eighteenth century. Clearly, the problem of an inadequate supply of wind had been reduced or even eliminated by the 1700s.

Jakob Adlung (1699-1762), another influential theorist, makes a similar point.

> Anyone who would like to know what to draw for a manual plenum (*zum vollen Werke*) need know only this: the required stops are those that intensify. The Principal, together with all the Oktaves, as well as the Quints and Terzes, all serve for this purpose, but the compound stops intensify the most, such as the Terzian, Sesquialter, Mixtures, Scharp, Cimbel, etc. . . . If one wants an even louder plenum, then one should draw the appropriate stops on the second manual and couple the manuals together.[17]

It is the statement that follows the one above which indicates a major change in building a *plenum* that may have been formulated at the end of Bach's life.

> One must, however, also have registers which contribute gravity. This includes *Gedackts*, such as the *Quintatön* 16', or, even better, the *Gedackt* 16' or *Rohrflöte* 16' or the equally large *Bordun* and (according to availability) *Gedackt* 8', *Quintatön* 8', *Rohrflöte* 8', *Gemshorn* 8', etc. For, I do not mean that one can be happy with the *Quintatön* 16' alone. One can, of course (if one must), but if one has more of the same, why shouldn't he use them?[18]

He included not only the flutes at the 16' level, "for gravity," but those at 8' pitch, also. Although Adlung knew of Werckmeister's and Mattheson's caution against including flutes in the plenum, he believed that "if the supply of wind is strong enough and the bellows are large and well made, then I do not hold to this

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[17] Ibid.

[18] Jakob Adlung, *Musica mechanica organoedi*, (Berlin, 1768). Translated by and quoted in Christensen, 14.

rule. . . . [19] This requirement would apply to the capability of the wind channels as well.

Perhaps the best understanding of Bach's thoughts on the *plenum* can be acquired through comments made by Johann Friedrich Agricola (1720-74), a student of Bach's for a period of three and one-half years (1738-41) during Bach's time in Leipzig. Agricola seems to have remained in frequent contact with the Bach family, eventually assisting C. P. E. Bach in writing the senior Bach's obituary. In fact, Agricola's article is the only source on registration that comes from Bach's immediate circle of colleagues.[20]

Agricola begins his writing with a discussion of the various classifications of stops, how they are made, size and so forth. What then follows is a description of how to use the practical information given in the preceding paragraphs.

> When one wishes to play quite loudly, one draws the full organ (*das volle Werk*) to which all of the principal stops described above belong. To these one may add the Trompetes 16', 8' and 4' if they are in good tune. It is indeed also possible to couple to it a second manual, on which the full organ is likewise drawn. [21] On this (registration) one may not only play slowly, but may also play rapid pieces (*Sachen*), if the organ speaks promptly and one's fingers allow it.[22]

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[19] Ibid., 13.

[20] The article appears in *Historisch-Kritische Beyträge zur Aufnahme der Musik* (Historical and Critical Contributions to the Reception of Music) published by Friedrich Wilhelm Marpurg (1718-95). Marpurg was an author and theorist who was closely associated with the circle of Bach's students that had migrated to Berlin. In Berlin, Marpurg enjoyed the company of C. P. E. Bach, J. P. Kirnberger and Agricola, who had been named Royal Prussian Court Composer and Director of the Royal Capelle (David and Mendel, 457).

[21] It is interesting that in preparation for testing an organ, J. S. Bach is reported to have drawn every speaking stop on the instrument—playing full, rich textures—in an effort to test the "lungs" [bellows] of the instrument. Although Bach may not have used all the stops in a *plenum*, he expected the organ to allow him to do so if he wished.

[22] Faulkner, 60.

Notice how different the latter part of this advice is from that of Compenius who said that the *plenum* should be used only in slow, chordal passages.

Agricola did seem to believe, however, that the flute stops should be excluded, just as Werckmeister had advised. Also of interest is the fact that Agricola classified strings as open flutes. These would have been excluded as well.[23] He made one exception to the "no flutes" rule:

> if the Principal is only an 8', then a 16' Gedackt, Bordun, Quintadena or Rohrflöte can and must be drawn with it. . . . A similar (precept) should be observed if the Principal is only a 4'; in that case, it is necessary to draw an eight-foot flute with it, as a foundation stop.[24]

Agricola made many other comments regarding other specifics of registration that will be discussed later.[25] He makes no claim that Bach in any way authorized the ideas given in his article. However, Bach's attraction to reeds is certainly reflected by the inclusion of reed stops in Agricola's *plenum* formula.[26] Faulkner, in discussing the situation, says

> if we take into account Agricola's contribution to Adlung's *Musica mechanica organoedi* (a publication that postdates the article by a decade), it is evident that Agricola maintained a strong allegiance—perhaps one might say 'reverence' for—J. S. Bach's organ registration preferences. Agricola mentions his teacher's name six times in his notes to Adlung's *Musica mechanica organoedi*; of those six, three cite Bach as an authority in modifying or refuting an opinion expressed by Adlung on organ design and registration.[27]

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[23] Ibid., 59.
[24] Ibid., 61.
[25] See pp. 103-105 of this document.
[26] See p. 18 of this document for Bach's comment about the reeds on the organ at the *Katherinenkirche* in Hamburg.
[27] Faulkner, 62.

There is ongoing discussion today regarding what constitutes a *plenum*. Bach scholar, Peter Williams, states that

> Players today, generally relying on notation to tell them what to think, should consider whether labeling a prelude or fugue '*organo pleno*' was meant to do more than alert the original players merely to the category of the piece in hand, i.e. indicating that it was not a solo-stop chorale or a two-manual trio.[28]

Williams also believes that a simple Principal 8' represents a proper *plenum*.[29] It is interesting to note also that Kaufmann recommended a Principal 8' and 4' for a *plenum*.[30] The ideas of both these men may be worthy of consideration if the sound were adequate for the structure and acoustics of the building. In a small church, a single Principal might have provided sufficient support for the congregation. However, in view of the historical documents covered in this paper, his statement is rather dubious. None of the historical definitions are so plain, so simple. All of the historical definitions contain mixtures; however, the issue here is that, for the sake of clarity, the more contrapuntal the piece, the fewer the number of stops that should be used. Not all pieces in free form, however, were equally contrapuntal. For example, the Prelude in E♭, BWV 552,1 —of the "St. Anne" set—is written in the style of a French overture with intermittent sections of counterpoint. The Prelude in E minor, BWV 548—part of the "Wedge" prelude and fugue—has a pedal part with frequent quarter-note octaves as well as several sections where the pedal line is simply a pedal point.

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[28] Williams, *Organ Music* 3, 170.

[29] ". . . the style of performance and registration for the *Orgelbüchlein* have to be viewed constantly with reference to the Halle terms [referring to the contractual duties of the organist], i.e. that the best starting-point for the organist today might well be to assume that an 8' stop or two is all that is required for most of the settings." (Ibid., 42.)

[30] Ibid., 169.

Mattheson's thoughts about *organo pleno* are frequently quoted. However, there is another side of his writing that is often overlooked. Williams believes that Mattheson's *plenum* directions were intended for "two kinds of music, accompaniment and homophonic praeludia. . . . "[31] This assessment is based on a footnote in Friederich Erhardt Niedt's work (*Handleitung zur Variation* [Hamburg, 1706; 2d, enlarged edn by J. Mattheson, 1721], 120.) in which Mattheson states that "where the organs are small and congregations large, one includes everything the builder happens to have provided."[32] Therefore by implication, if the congregation is not large, the *plenum* may be reduced. Common sense seems to have been practiced. These quotes obviously refer to accompaniment for congregational singing, which was still a primary function of the organ in churches.

All of this data leads to the conclusion that the composition of *plena* changed and increased during Bach's lifetime. Again, this change was made possible because of an increased wind supply. Not only was the number of bellows augmented during the period but, also, the size of bellows was enlarged. This, then, was an age in which the number of bellows for an organ was directly related to its number of stops. The second reason that more stops could be combined was the increasing size of wind channels. Wind channels were enlarged to equal the total cross section of all the valves for playing twelve notes on the organ at any one time—on the order of two hundred square inches—what one organist could possibly play with all the stops and couplers drawn (Ten

[31] Ibid., 166.
[32] Ibid.

fingers and two feet far exceed the usual demand on the wind supply). In short, the organ in Bach's time used a considerable amount of wind, much more than it had in the past. This important change in organ construction could not help but have an effect on the registration practices of organists in the eighteenth century. Williams' summarizes the situation succinctly when he says, "On the one hand, then, it is clear that the *organo pleno* could and no doubt did gradually include more stops, but on the other [hand] that it was not rigidly fixed and was not used indiscriminately in all kinds of music."[33]

Another source of information regarding Bach's registration practices are his organ works written in trio form. Trios include works based on chorale preludes and those conceived independent of a chorale tune. When considering the genre of organ trios, specifically those not based on a chorale melody, Bach's six Sonatas for organ come to the forefront.[34] Although these works each bear the simple title of Sonata, they are more commonly referred to as Trio Sonatas since they are written in three voices. Trios are compositions that usually require the use of two separate manuals with the pedal supplying the third part. They consist of three independent, and usually equally important, lines and require separate manuals to aid in distinguishing the two upper lines. Furthermore, it is not uncommon for the two upper lines to overlap, making two keyboards not only a convenience, but also a necessity.[35] As Barbara Owen notes, "It is in the central

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[33] Ibid., 167.

[34] There are numerous of Bach's other works also in a three-part format. These will be discussed with other categories.

[35] As noted early in this paper (p. 21), Bach was familiar with works of French Baroque composers by means of the many handwritten copies he made of their works. The trio format is one of the standards in the *oeuvre* of these composers. The standardized French registration of

German Baroque . . . that one begins to find instrumental forms, such as the trio sonata, adapted to the organ, along with outright transcriptions from instrumental works. . . . "[36]

Two of these transcriptions appear in the Sonatas. The first movement of *Sonata IV* BWV 528 originally appears as a sinfonia in the middle of Cantata 76. The orchestration in the Cantata, viola d'gamba and oboe d'amore, is an obvious clue for registering this movement. The second movement of *Sonata III* BWV 527 originated as the slow movement of Bach's *Concerto for Flute, Violin and Harpsichord* BWV 1044. The original instrumentation was for harpsichord, flute and strings. A combination of stops imitating this group would be suitable for a typical trio Sonata movement. The ideas for registering these two specific Sonata movements, then, can be applied to others as well. It is evident that Bach's approach to registration in this circumstance as well as others could have been highly orchestral.

There are a few instances, especially in his chorale preludes, where Bach gave specific information for registering his music. One such example is *Gottes Sohn ist kommen* BWV 600 (Example 4-2) from the *Orgelbüchlein.* The *Orgelbüchlein* is a collection of short chorale preludes that, according to the title page, is intended chiefly for use as a pedagogical tool for training young organists. In addition, the subtitle—*In Canone all' Ottava, a 2 Clav. e Pedale*—also lets the performer know that the piece requires two keyboards and that the melody is in canon at the octave.

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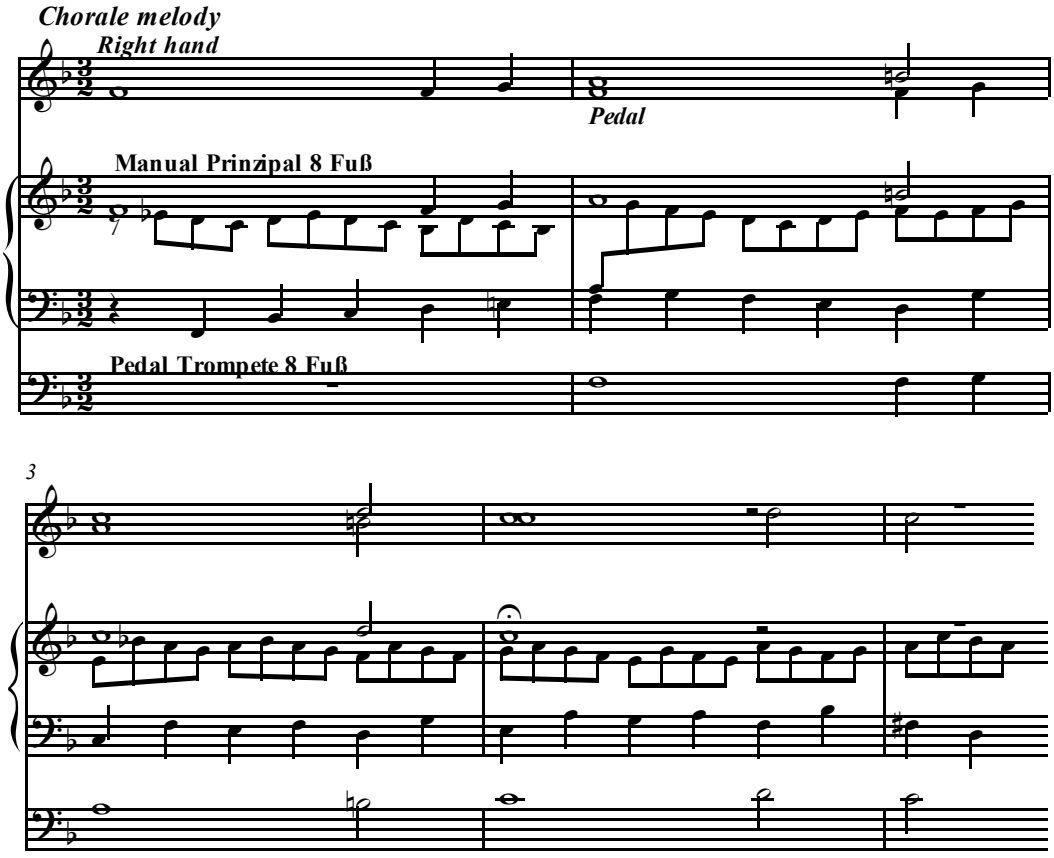
these trios of the Baroque period called for sounds that were—to some extent—different in character.

[36] Owen, 157.

***Gottes Sohn ist kommen* BWV 600**

In Canone all' Ottava, a 2 Clav. e Pedale

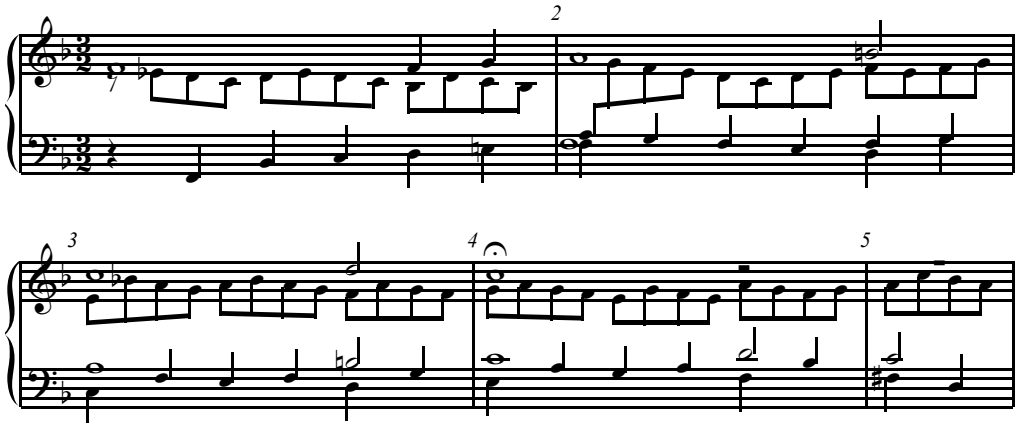


Example 4.2 mm.1-5, Ossia line is added here to enhance the canonic lines.

The Latin instructions alone might have provided sufficient information except for the fact that the pedal specifies a Trumpet 8' and the other voice of the canon is carried in the soprano by a Principal 8' or a registration based on that stop.

Williams supports the idea that Bach included registrational suggestions in some of his chorale preludes, for example, the *Orgelbüchlein* piece, *Gottes Sohn ist kommen,* for the sake of clarity. ". . . the true point of the rubric [registration suggestion] is to show that in the cramped two-stave scores, the pedal and manual chorale-melody stand to each other as a canon at the 8ve: something not immediately clear."[37]

***Gottes Sohn ist kommen* BWV 600**
In Canone all' Ottava, a 2 Clav. e Pedale



Example 4-3: BWV 600 mm. 1-5 on 2 staves as was original manuscript.

After looking at Bach's manuscripts, and others of the time, a need for clarification seems evident. Example 4-3 gives a token idea of how *Gottes Sohn* written on only two staves might have looked, and—in spite of the neatly drawn example shown here—is vastly improved over the handwritten version of three

[37] Williams, *New History*, 116.

voices on two staves. The canonic voices are not readily apparent even on this computer-generated example. Although organ music has been written on three staves for a lengthy period of time, it was not so during Bach's life. With each piece of manuscript paper having to be lined by hand, economizing on paper likely contributed to manuscripts that were difficult to read, especially those manuscripts with special features to be noted by the performer. Both keyboard parts and that of the pedal were written on just two staves if at all possible.

The use of the pedal reed could have made the pedal stronger than the soprano, depending on the registration of the right hand. The second manual part for the left hand is the bass line of the composition and would suggest a registration based upon a stop at the 16' pitch. Bach apparently assumed that the performer would be able to determine an appropriate sound using the information that he gave, combined with the performer's own knowledge of style and form. Perhaps, in the true manner of a teaching manual, Bach expected students to take the information that he had given and transfer it to like situations.

The chorale prelude on *Ein feste Burg* BWV 720 (Example 4-4) also contains specific information on registration.[38] The registrations available today exist in handwritten copies of the work of Bach's colleague and cousin, Johann Walther.[39]

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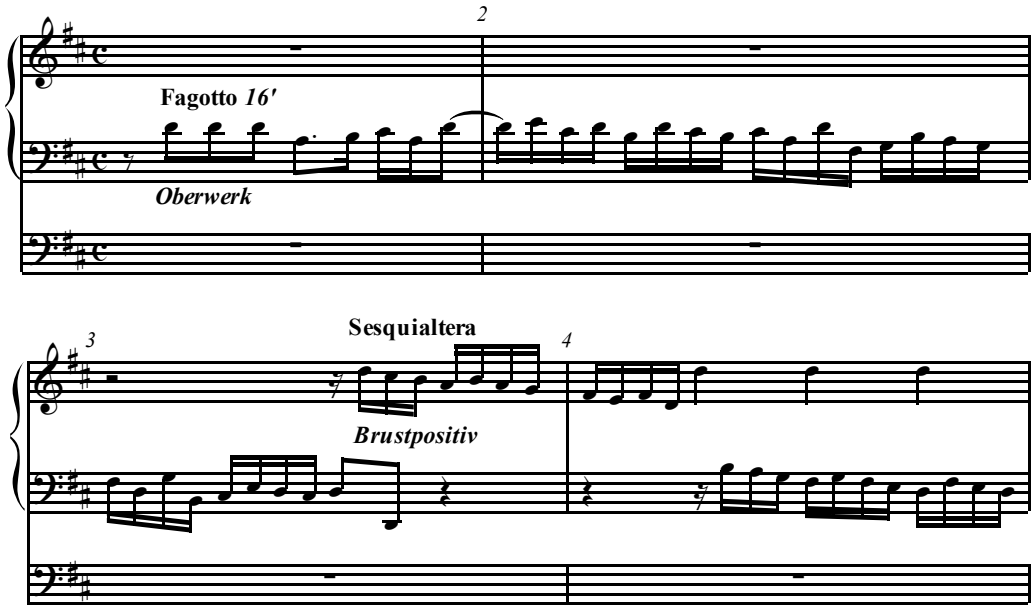
[38] Spitta was the first to recognize the almost certain connection between this chorale prelude and the rebuilt Mühlhausen organ. It was probably written for use on Reformation Day, 1723.

[39] The source for the prelude with its accompanying registration indications is a 345-page album of organ chorales (*Königsberg* 15839) copied, in part, by Johann Walther.

***Ein feste Burg* BWV 720**



Example 4-4: mm. 1-4.

The word "Fagotto" is written at the beginning of the left hand part and "Sesquialtera," above the right hand line. These pieces of information were most likely a form of shorthand for Bach.

> It is only good sense to assume that Bach did not play the left hand Oberwerk part on the Fagott 16' alone, but rather on the Fagott with some suitable 8' and 4' (perhaps even 2') flue stops, just as he would hardly have played the right-hand Brustwerk part on the Sesquialtera mutations without giving them their usual 8' and 4' foundation.[40]

Possibly added to Owen's preceding statement could be the inclusion of a 2' foundation stop to provide a complete Cornet sound.[41] With these bits of

[40] Owen, 160.

[41] The complete Cornet consists of flue stops at 8', 4', 2⅔', 2' and 1r' pitches.

registration information, Bach provides a "sound" ideal, his concept of how the prelude should sound or would sound best, and leaves minutiae related to peculiarities of a specific organ to each performer. Again, Bach seems to have expected a certain level of knowledge and common sense from those who played his compositions.

Unlike *Gottes Sohn*, however, the construction of *Ein feste Burg* is very straightforward and would not seem to require special markings. The pedal part is minimal. It is made up of two short phrases of the chorale in half notes and three sets of figural patterns, nondescript and easily discernible in a two-stave manuscript. The keyboard parts are not unusual either. In fact, *Ein feste Burg* is so ordinary in its construction, that it is unclear why Bach, by way of Walther, felt it necessary to set it apart with registration specifics. The scheme of this prelude is no different than dozens of others that he wrote, but it is the only one with registration information attached. Nevertheless, the use of the Fagotto in this situation serves as a reminder of Bach's inclination toward orchestral thinking.

Bach's *Concerto in d minor* BWV 596 is an arrangement of Vivaldi's *Concerto d minor for Two Violins and Violoncello obligato and String Orchestra* from *L'estro Armonico* Op. 3 Nr. 11(RV 565). This concerto is the only one of Bach's arrangements of instrumental concertos that exists in autograph form.[42] In the opening movement (Example 4-5), the two violins are represented on two separate keyboards by Octaves 4'.

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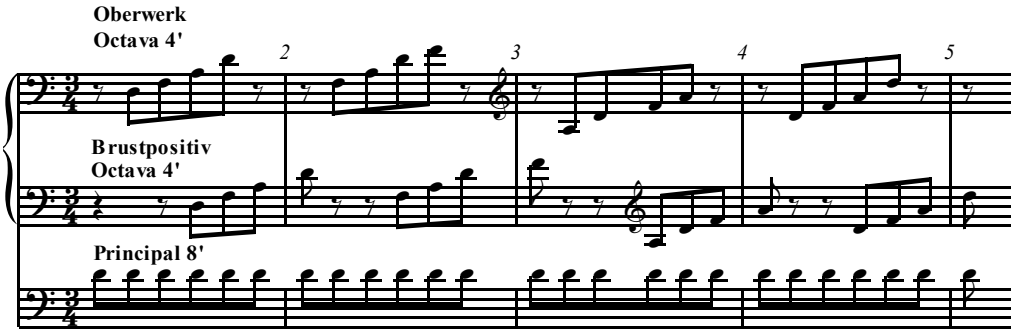
[42] Although it was also claimed by Wilhelm Friedeman Bach to be his own work, this particular autograph has been authenticated as Johann Sebastian's by Max Schneider in the Bach *Jahrbuch*, 1911 (Williams, *Organ Music* 1, 312).

> Two 4-foot Principals (these have a more violin-like tone than those of 8-foot pitch) played an octave lower are prescribed to imitate the original two solo violins. . . . [The sounds of] this stop family more closely resemble the strings of the orchestra.[43]

Perhaps a better explanation for the use of 4' stops is that they enabled the organist to play the high ds that were in Vivaldi's original composition. These notes would have been beyond the compass of most manuals of the time.

***Concerto in d minor* BWV 596**

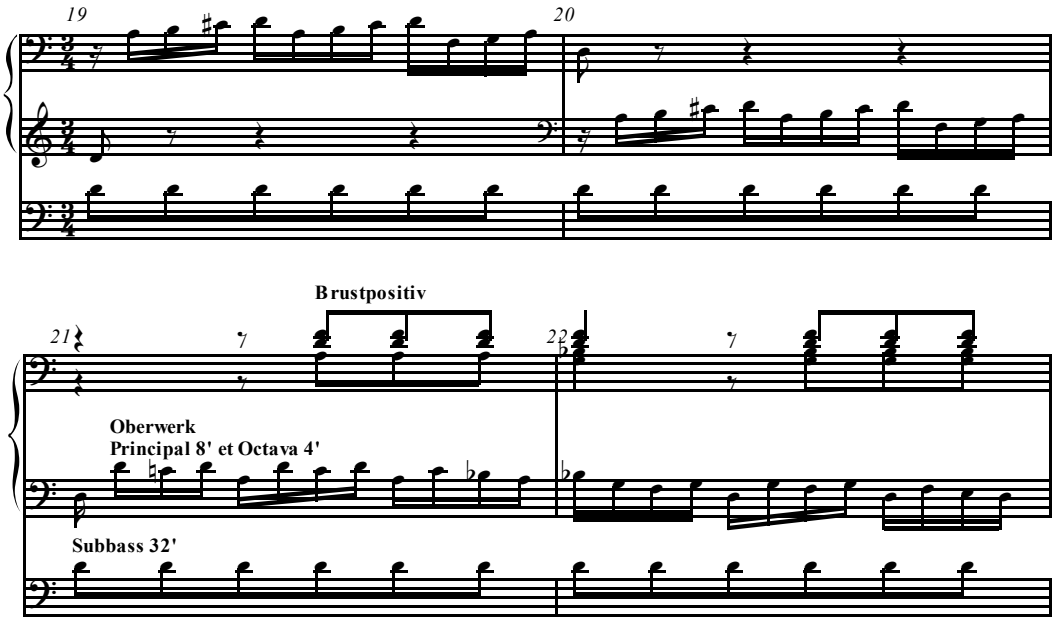


Example 4-5: mm. 1-4.

Pedals using a Principal 8' play a line that one would assume was written for cello and basso continuo. Yet, in Vivaldi's original work, there is no third part —the solo cello—nor continuo of any kind until measure 21. At this point in the transcription (Example 4-6), Bach indicates a change in registration: Pedal Subbass 32' and Oberwerk Principal 8' and Octava 4'. The Brustpositiv remains unchanged, but the Pedal indication is not obvious. With Bach's new indication for the Oberwerk, Principal 8' and Octava 4', it is clear that he intended the Principal to be added to the Octava to augment the cello entry. He was not,

[43] Nortjé, 124.

***Concerto in d minor* BWV 596**



Example 4-6: *mm. 19-22.*

however, exchanging one stop for another. In contrast, the pedal indication is subject to the performer's interpretation. The Subbass 32', for example, is a stop that is never used alone. The use of corresponding stops—a 16' and an 8'—could be assumed, then, as was the case with the Fagotto and Sesquialtera in *Ein feste Burg*. On the other hand, the pedal line is in its upper range at that point. Perhaps this is why Bach chose the 32' stop.

The specific registrations attached to the *Concerto in d minor* provide information that goes well beyond its application to a single piece. The registrational nature of Bach's information serving as a guideline may be its most important function. As Williams observed,

> The first movement in particular has become celebrated as an example of J. S. Bach's registration practice, since the clear directions . . . establish (or confirm) important principles:
>
> - manuals were not necessarily based on 8' [pitch] nor pedals on 16' [pitch, going an octave below the contre basse pitch]
> - in transcriptions, the two manuals were used to replace several kinds of scoring, not only solo-with-accompaniment
> - hands could exchange manuals in the course of a piece
> - a stop (or stops) could be added to manual or pedal in the course of a piece.[44]

We see the principal of precedents established with these comments, suggestions made by Bach in this transcription that might be applied to his original compositions as well.

An additional important source of information regarding Bach's registrations is a collection of his own works that he transcribed for organ. The original works were solo arias or duets in his cantatas. Those arias originally for solo voice are given new life as trios. The arias that were originally for two voices, on the other hand, were recomposed as four-part textures. All of the cantatas still exist in their original form, except No. 2.[45] The collection was published in the late 1740's by Johann Georg Schübler and is commonly known as the *Schübler Chorales*.

Written instructions in the pieces are limited to manual indications and pitch designations. Other instructions call attention to the *forte* in no. 4, *Meine Seele erhebt den Herren* BWV 648, and confirmation of "a Clav. e Pedale" in

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[44] Williams, *Organ Music* 1, 313.

[45] Williams seems to believe that Schübler BWV 646 is not cantata-based because of what he calls its "keyboard idiom." His theory is that the composition was originally an organ composition that later became part of the cantata. The Schübler version was then transcribed back to an organ solo from the cantata (*Organ Music* 2, 103).

No. 5, *Ach bleib bei uns* BWV 649. To decide what registrations to use, one may, instead, refer to the original score and instrumentation. In the original *Wachet auf, ruft uns die Stimme,* BWV 140—No. 1 of the Schübler collection BWV 645—the chorale tune is sung by a tenor soloist and the other two parts played by strings. Bach's transcription is true to the original format. However, many organists choose to play the chorale on a trumpet stop instead of anything that might resemble a human voice, such as a Principal or Vox humana. By contrast, in No. 4, *Meine Seele erhebt den Herren*, two oboes and trumpet play the chorale tune in its original orchestration**.** Against this, the two solo voices sing moving lines, seemingly unrelated to the chorale. It seems likely that Bach would have chosen registrations that matched the original orchestration. In my view, performers also should consider the original orchestration when choosing registrations for transcribed organ pieces.

A frequently overlooked resource on Bach's registration practices is a group of cantatas called the "organ cantatas."[46] Most of this group, composed while Bach was in Weimar, were revised in 1726 for his use in Leipzig. The name, organ cantatas, calls attention to the fact that in each of the nineteen works, the organ part is scored as "obligato," obligatory, meaning it must not be omitted. "Certainly one of the most 'galant' [*sic*] features of the organ solos [in these cantatas] is the clever manner in which the organ feigns identities other than its own."[47]

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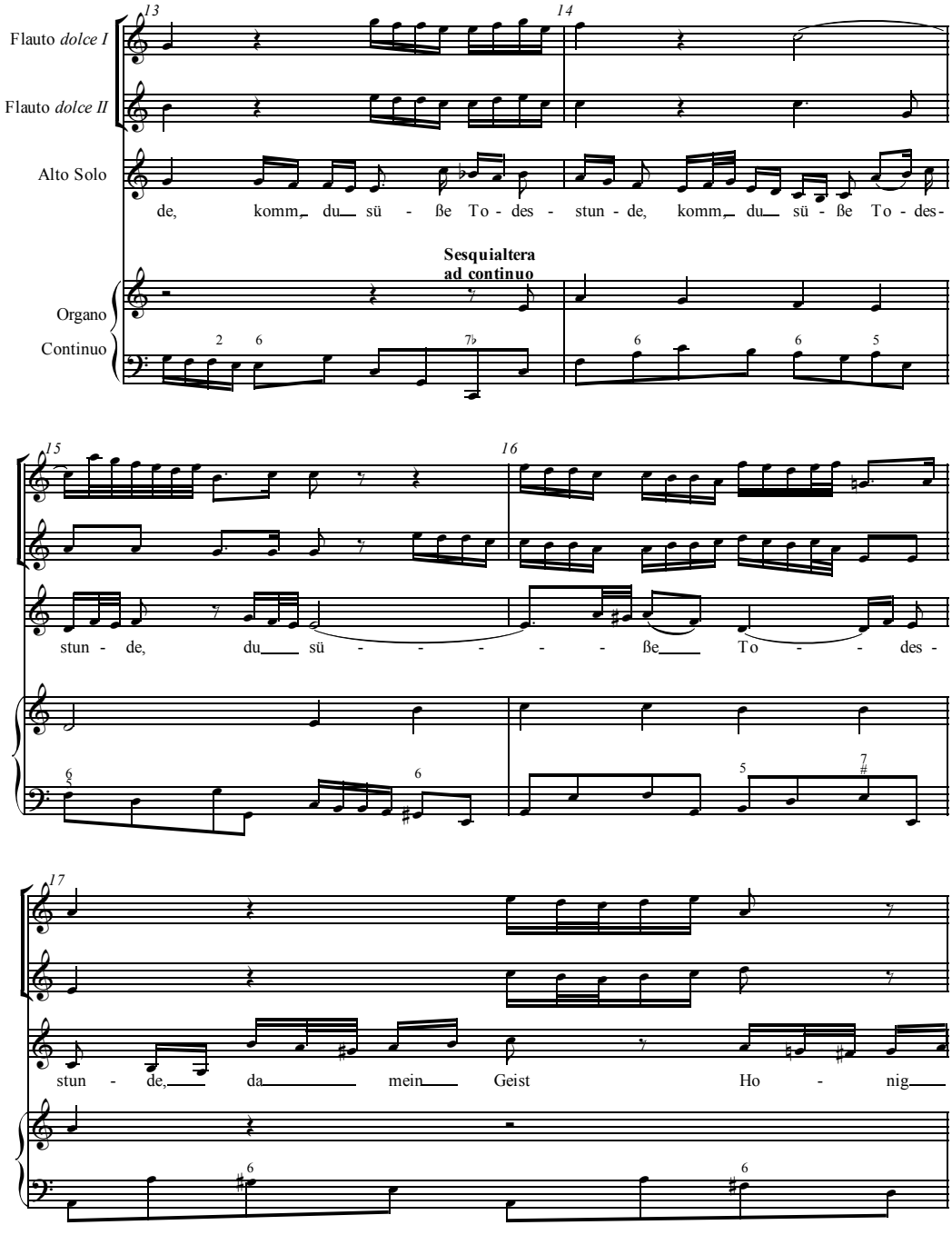
[46] Charles Sanford Terry, *Bach's Orchestra* (London: Oxford University Press, 1932), 171.
[47] Dreyfus, 178.

The obligato organ part in most of these cantatas was probably used to support the singers or to fill in for a missing instrument. The latter function is still common today. It would likely have been difficult for Bach to secure the services of another oboist, trumpeter or any other soloist if a performer suddenly became ill or unavailable. The fact that many of the organ's registrations imitate orchestral instruments allowed the organist to fill in the missing part. At various times in these cantatas, for instance, the organ takes on or amplifies the role of the cello, flauto traverso, oboe, violin or trumpet. In each situation Bach wrote in a style specific to the instrument imitated whether it was the idiomatic string crossings of the cello in Cantata No. 35, *Geist und Seele wird verwirret,* or the double stops of a violin in Cantata No. 47, *Wer sich selbst erhöhet*. In an example of reverse substitution, Cantata No. 128 *Auf Christi Himmelfahrt allein*, Bach stipulated "organo solo" in his score but actually had the part written out for oboe d'amore. However, in Cantata 161 (Example 4-7), *Komm du süsse Todesstunde* BWV 161, the organ plays the melody of the Passion Chorale—*Herzlich tut mich verlangen*—for which Bach specifies a Sesquialtera.[48]

[48] This chorale melody is not related to the melodies of the cantata.

Komm du süsse Todesstunde BWV 161



Example 4-7: mm.13-17.

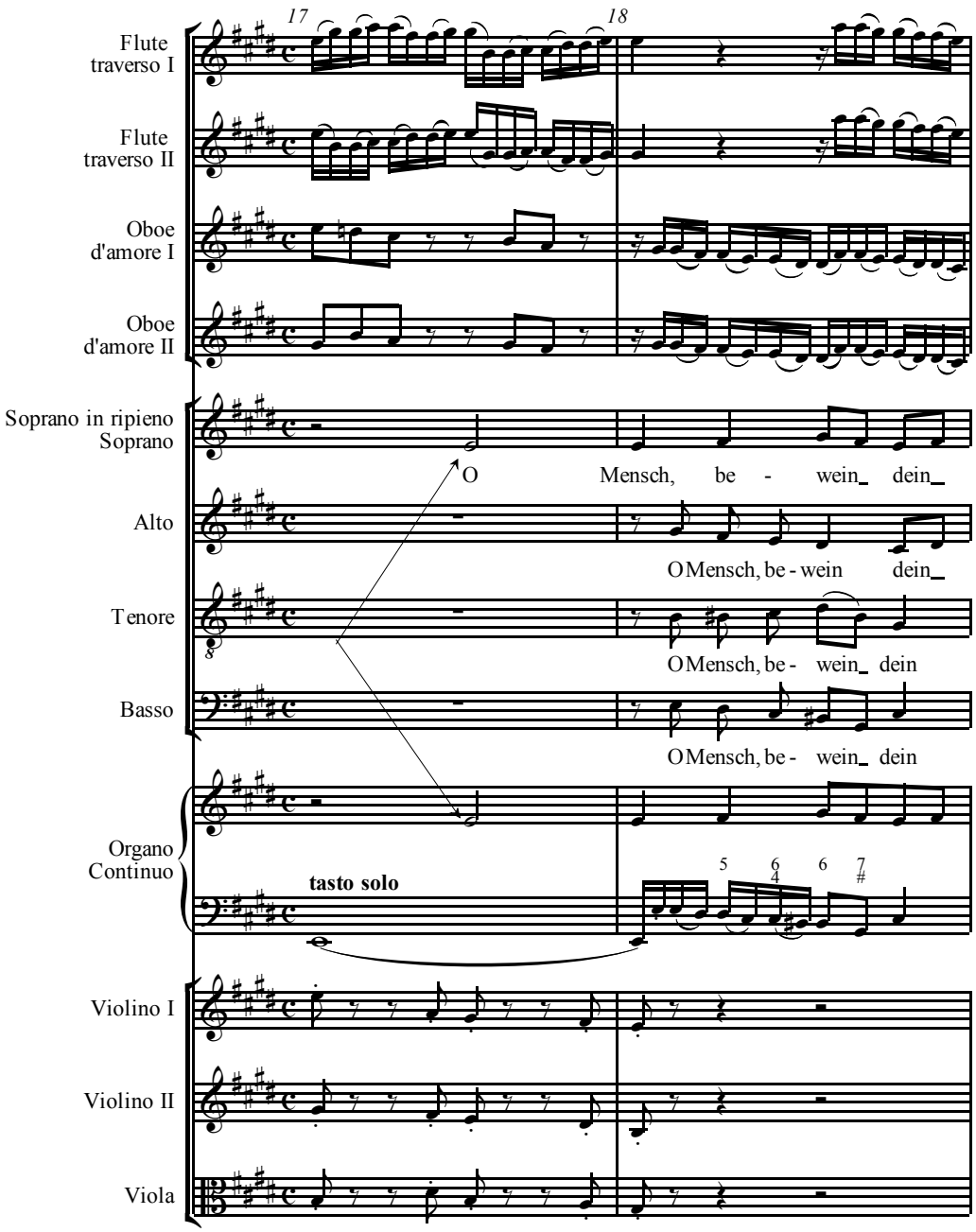
In most of these cantatas, the "organ functioned like any other wind instrument, contributing a single melodic line to the polyphonic structure."[49] In at least two of the cantatas, *Geist und Seele wird verwirret* BWV 35 and *Ich habe meine Zuversicht* BWV 188, the organ part is considerably more substantial, often soloistic, indicating that the organ had numerous roles in these cantatas in addition to that of a continuo instrument.

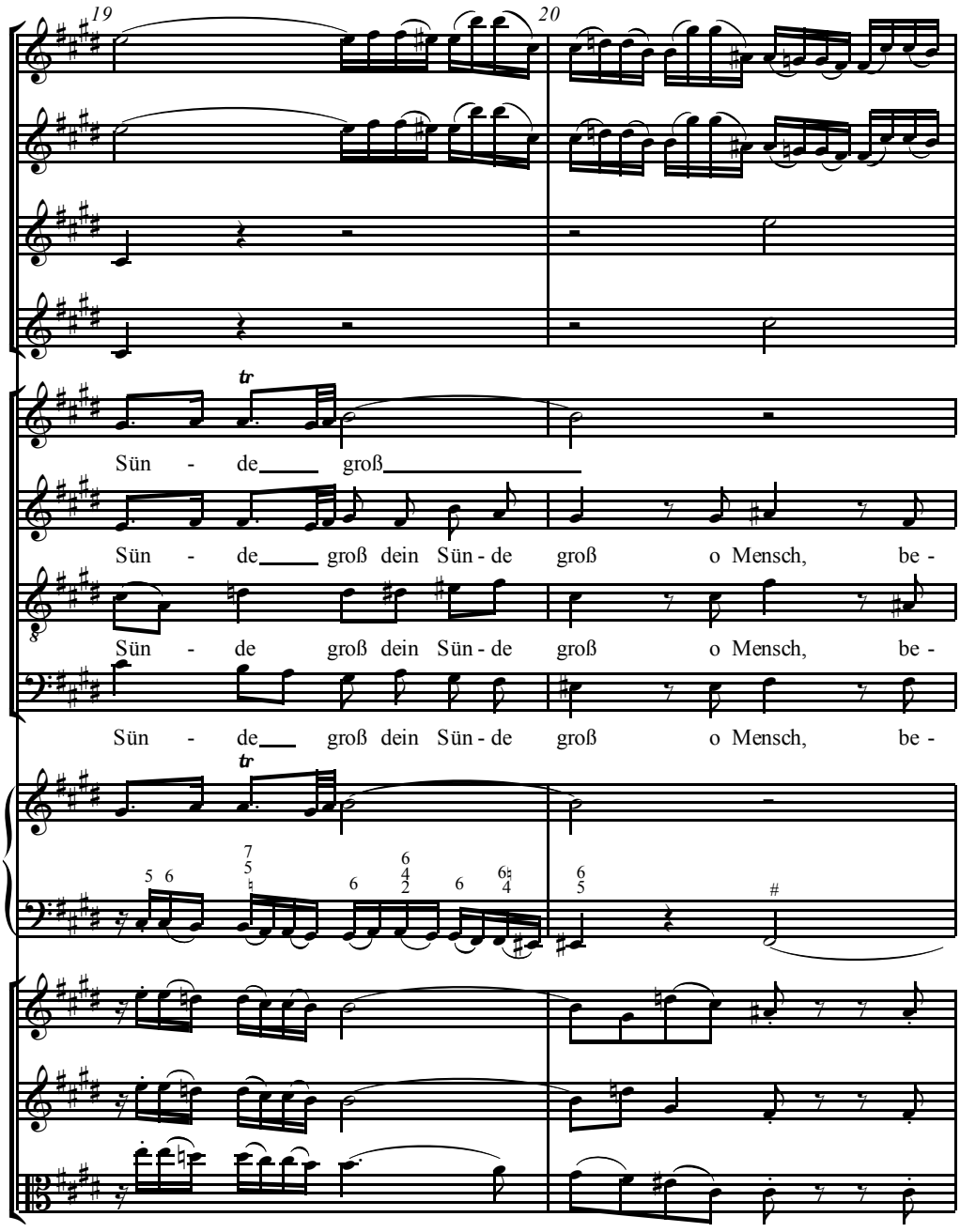
There are two movements from *Matthäuspassion* BWV 244 that also contain obligato organ parts. In the first movement, the organ duplicates the chorale tune, *O Lamb Gottes,* which is the soprano *ripeno* line and would have been sung by boys. In the final movement of Part I (Example 4-8) of the Passion, *O Mensch, bewein dein Sünde groß,* the organ performs the same role with the sopranos of the choir. Barbara Owen states that "Bach is later recorded as using a Sesquialtera combination to reinforce the treble unison line. . . .[50] Although Owen does not reference her remark, this would not be a surprising registration in that Bach, as stated previously, spelled out such a request in Cantata 161 and in the chorale prelude, *Ein feste Burg*.

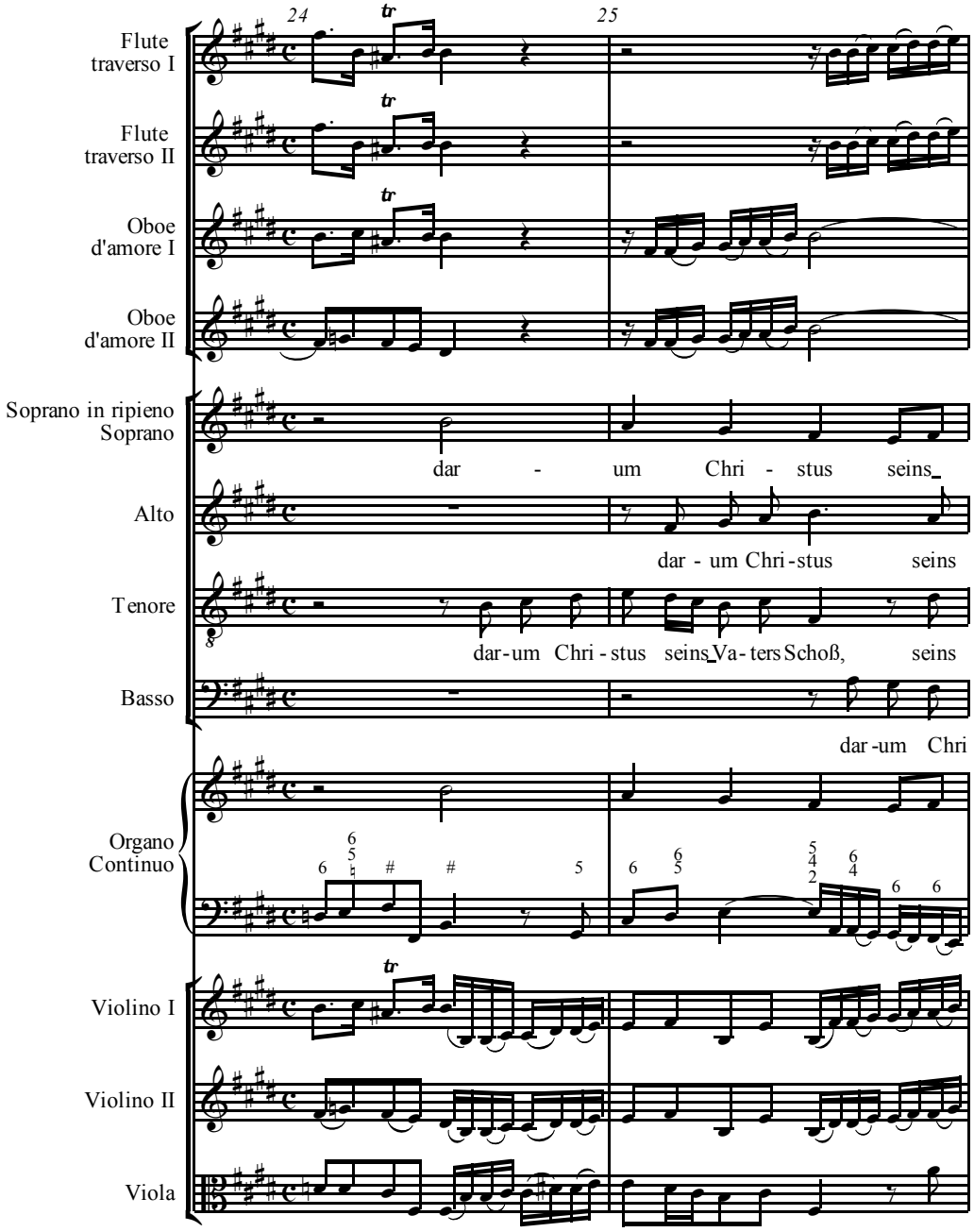
[49] Terry, 173.
[50] Owen, 165.

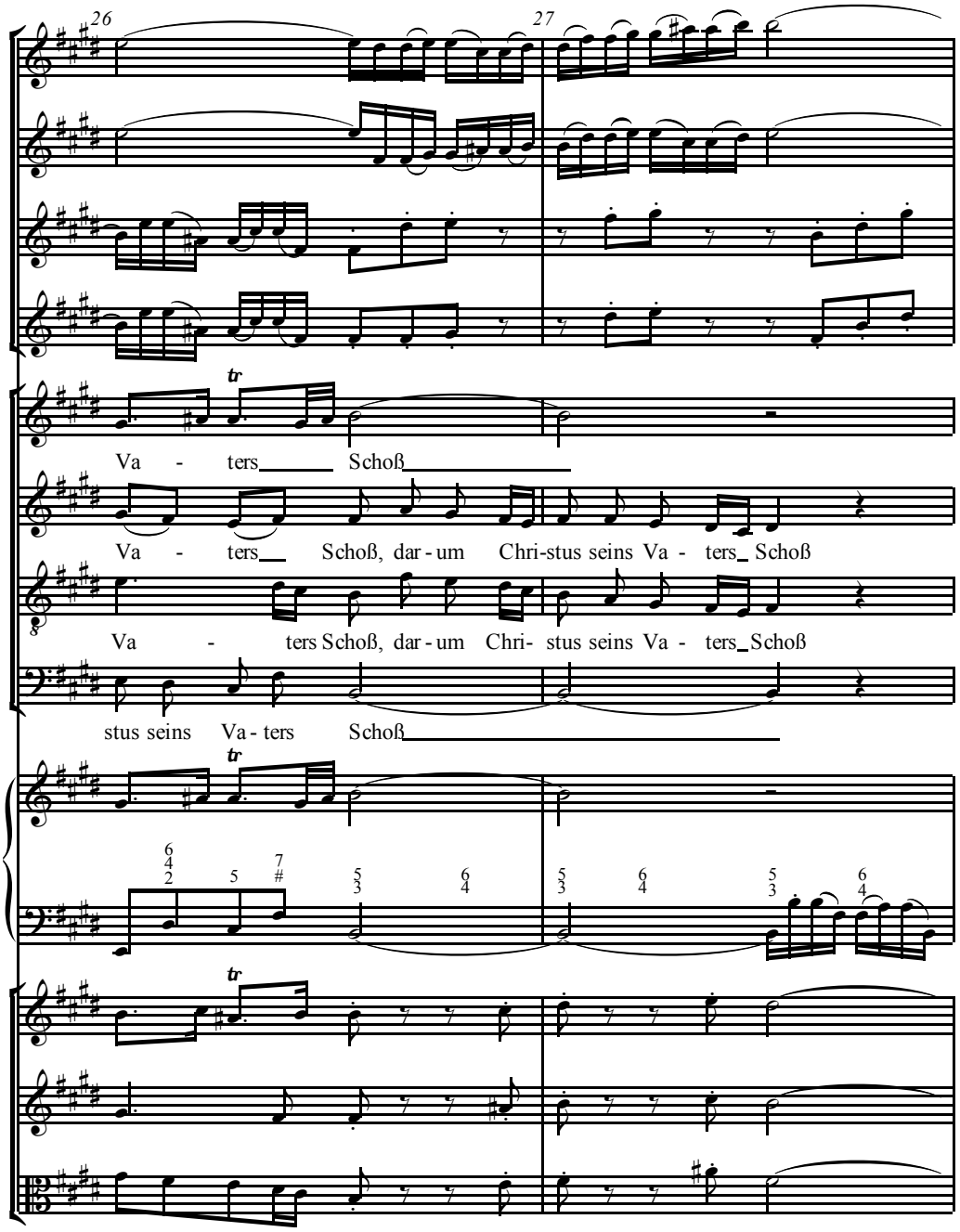
Matthäuspassion **BWV 244**

Nr. 35. Choral *O Mensch, bewein dein Sünde groß*




19
20
Sün - de groß
Sün - de groß dein Sün - de groß o Mensch, be -
Sün - de groß dein Sün - de groß o Mensch, be -
Sün - de groß dein Sün - de groß o Mensch, be -


24
25
Flute traverso I
Flute traverso II
Oboe d'amore I
Oboe d'amore II
Soprano in ripieno Soprano
dar - um Chri - stus seins
Alto
dar - um Chri - stus seins
Tenore
dar - um Chri - stus seins Va - ters Schoß, seins
Basso
dar - um Chri
Organo Continuo
Violino I
Violino II
Viola



Example 4-8: Matthäuspassion BWV 244, mm. 17-27.

In summary, there is more information available for registering Bach's organ music than appears at first glance. It is necessary to look beyond the obvious, those few detailed places in his organ works, and to be willing to generalize on that which was given, carrying it forward to the unmarked pieces. The results from doing so can depart, sometimes radically, from the contemporary sounds we sometimes hear in the registrations of Bach's organ music.

Chapter 5

Registrations from Bach's Contemporaries

Although Bach left little in the way of registration suggestions, there were those among his fellow contemporaries who—for whatever reason—deemed it worthwhile to put their ideas on paper. Even the builder Silbermann wrote out his suggestions for registration pertaining to at least two of the organs which he built. Just as opinions varied, as discussed in chapter 4, about the makeup of a *plenum*, organists and theorists in the eighteenth century had different ideas for other registrations. It is difficult, if not impossible, to establish a chronology for these suggestions because the life spans of the writers who contributed to them overlap. Mattheson, for example, was born four years prior to Bach and outlived him by fourteen years. Thus the possibility exists that Bach was influenced by Mattheson his entire professional life. On the other hand, Williams, referring to Adlung's registrations of 1768, states that "such guides belong to the seventeenth century in conception . . . having encouraged thin, clean registrations."[1] Williams seems to believe that Adlung's suggestions were quite dated. Thus the contributors will be discussed chronologically by birth year.

[1] Williams, *European Organ*, 147.

Kaufmann (1679-1735) offered many registration suggestions in his book of chorale preludes, *Harmonische Seelenlust* published in 1733. Of special interest is the fact that Bach sold the *Seelenlust* collection from his house in the last part of his life. Since Bach sold the collection personally, it probably had his approval. Kaufmann's registrations are particularly significant because of his geographic proximity to Bach and because he used the chorale prelude form which was closely aligned "to the master."[2]

Six major trends can be discerned in Kaufmann's book of over one hundred pages that presented registrations for fifty-four[3] choral preludes.

- Kaufmann made frequent use of the Fagott 16', sometimes with flues added, sometimes alone for each hand. This stop was used with additional flues of 16', 8' and 4' pitches for the left-hand part in at least one chorale prelude of two-voice texture (*bicinium*) against two 8' stops, Vox humana and Salicional. Curiously, Kaufmann also used the left-hand combination just mentioned as the accompaniment for a pedal solo on the Violone 16'. Stauffer points out that

  > Kaufmann's indications show that the 16' Fagott found on the Hauptwerk of many German organs was often used along with a Principal 8' and Kleingedackt 4' or similar stops, for the left-hand figuration in duets in which the right hand had a *cantus firmus,* outlined with a Sesquialtera or a similarly bright sound. . . . Fagott corresponds with Bach's description of the stop's function and with the indications passed down in his [Bach's] chorale prelude *Ein feste burg*.[4]

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[2] Nortjé, 102.

[3] Barbara Owen references sixty-three chorale preludes in *Seelenlust* (page 160), a variance from observations of this author.

[4] Stauffer, 201. This chorale prelude is discussed in chapter 4, pp. 73-75 of this document.

According to Williams,

> Kauffmann seems to recommend two-part organ chorales as being particularly able to awaken the listener to 'a special attention.' Kauffmann's registration aims at a forthright contrast between the two parts, e.g. Cornett or Sesquialtera (rh) against reed + flue 16' (lh), such as indeed awakens attention in any listener.[5]

Kaufmann's use of seemingly incomplete registrations parallels the issue discussed in chapter 4 pertaining to Bach's own sketchy registrations. As stated in that chapter, the Sesquialtera is not a stop used alone. Kaufmann not only used the Sesquialtera in this manner, but the Cornet, as well. Are the foundation stops of 16' and 8' pitches for the Sesquialtera and the Cornet implied here just as they were for Bach? Or did Kaufmann want the unusual sound of the single stops? Williams believes the second scenario to be the correct one. The similar methods of Bach and Kaufmann for transmitting information are worth noting no matter what the conclusion.

- An assessment of Kaufmann's registrations makes it apparent that Kaufmann had a fondness, not only for the 16' Fagott on the manuals, but for reed stops and 16' stops in general for the left hand. Even in low-pitched textures, he frequently used 16' stops on manuals. Owen speculates that Kaufmann's frequent use of 16' stops was a carryover from their basso continuo use in cantata settings.[6] Whatever the basis, this, obviously, was a sound that Kaufmann valued.

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[5] Williams, *Organ Music* 3, 113.
[6] Owen, 160.

- Additionally, there are examples of the two-part chorales where both lines specify a 16' sound and, minimally, four instances where Kaufmann specifies a registration for two-manual chorales that includes two 16' stops, one a reed and one a flue, on the same manual.
- On the other end of the sound spectrum, Kaufmann's use of 2' sounds is very limited. There is a total of forty-five sets of formulae for manuals and Pedal and the 2' pitch appears in less than one-third of those formulae. None of Kaufmann's suggestions contains stops using the 1' or 1 3/5' pitches and the 2 2/3' pitch is suggested for use in only a few recipes.[7] This lack of high-pitched sounds, including the lack of any mixtures with otherwise full registrations, seems to vary from what we have learned in earlier chapters about Bach's registrations. The absence of upper work along with the preponderance of 16' stops likely created a sound that was heavy in nature.
- Kaufmann made extensive use of the Vox humana. It is used in sixteen of the suggested registrations, slightly more than one-third of the registrations given. The Vox humana is used in several situations: (1) as the only 8' sound in a registration; (2) combined with other 8' stops; (3) combined with 8' and 4' stops, and (4) combined with 16', 8' and 4' stops. Such extensive use of this particular stop is unique among all the registrations researched for this paper.[8]

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[7] Recipe is a term commonly employed among organists in reference to the combination of stops utilized to create various sounds on the organ.

[8] The significance of the number of registrations using the Vox humana is more evident when noting that the stop is included on only eleven of the forty organs included in this study.

- Kaufmann prescribed registrations that use 4' stops for the left-hand line. This could be the first recorded instance of this recipe and technique. In order to maintain a proper pitch relationship between lines, it appears that the performer was expected to play the part an octave lower than written. English organist and composer, David Dahl, states that "you will rarely ever find composers writing for anything below tenor C, suggesting that they knew the LH [*sic*] was playing an octave lower."[9] Particularly appropriate for trios, the use of the 4' stop in this manner has at least two distinct advantages for the organist. One is the ability to play within the framework of what would be considered a normal range for the left hand. If an 8' stop is used for the left hand, the organist is required to play in a less than comfortable position with the left arm constricted against the rib cage. A collision of left and right hands can occur even when playing on different but adjacent manuals. Secondly, using a 4' stop and playing an octave lower expands the scope of sound possibilities available from existing stops.[10]

Just as registrations offered by both Bach and Kaufmann are sketchy in nature, another parallel of Kaufmann's to Bach's written registrations is the way in which Kaufmann might have intended the collection to be used. Following the registrations from the beginning of the collection to its end, one notes that

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[9] David Dahl, "German Baroque Registrations," in PIPORG-L [electronic bulletin board], s.l. 30 October 1995; available from LISTSERV@listserv.Albany.edu.

[10] Likewise, in other situations, a 16' stop could be used and played an octave higher to get the desired results.

although the first half of the chorales contained detailed instructions regarding their registrations, Kaufmann became less specific as the chorales progressed through the collection. He gave manual indications in some of the chorales, but made no suggestion for the pedal line. In those situations, he noted the pedal registration with *Ped* [*sic*], but left blank the space that followed. In another example, the divisions were duly noted, *Hauptwerck, Oberwerck* and *Pedal,* but no registrations were given. It appears that Kaufmann, like Bach, assumed that he had given ample information for the performer to be able to transfer his ideas to those situations he deemed similar. Thus it seems quite plausible that, like Bach's *Orgelbüchlein*, *Harmonische Seelenlust* was meant as a teaching device.

Mattheson's (1681–1764) contribution consists more of generalities about registration than specific formulae. He preferred to "use the stops in families and contrast[ed] the 'thin' [principals] and the 'fat' [flutes] families."[11] Mattheson campaigned against the use of reeds and flues of the same pitch in one publication, *The Musical Guide,*[12] but, in a different publication, *The Newly Inaugurated Orchestra,* indicated that such a practice would be appropriate on the manual if a reed were included in the pedal registration. The two volumes are only four years apart in publication, not a particularly lengthy passage of time for major concepts to change. Or, perhaps, the second publication merely provided an exception to the rule. In addition, as Barbara Owen notes, the advice against

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[11] Sumner, 57. Thin and fat refer to scaling, the ratio of the width of pipes to their diameters.

[12] Pamela L. Poulin, introduction to the translation of *The Musical Guide*, by Friederich Erhardt Niedt (Oxford: Clarendon Press, 1989), xv. The original text was written by Niedt; however, Mattheson served as editor when the original, three-part work was published in a single cover. According to the translator of the English version, "In addition to annotating the text and adding an Organ Appendix of sixty-three organ specifications, Mattheson completely rephrased the text of this volume in his exceedingly prolix style."

combining reeds and flues of the same pitch "contradicts the usage of almost every other region since the Renaissance!"[13]

Unlike others addressing the subject, Mattheson seemed to have no problem with "gap" registrations, those which used non-consecutive octaves. A combination of Gedact 8' and Waldflöte 2' is listed among his preferred solo sounds. Following the lead of Werckmeister, Mattheson admonished against using two 8' stops together. However, if two or three stops of another pitch are also drawn, then the use of two 8' stops is permissible.[14]

Similarly, "The transparent 'contrapuntal' flue chorus must not be sullied with thick tones and even the sesquialtera [*sic*] should not be combined with 4 ft. tone when it is used for solo purposes."[15] And, by implication, the 2' sound should not be used either because when either of these stops is added, one approaches more the sound of a Cornet, a fuller sound.

Some of Mattheson's suggested registrations lack the sense of balance between the divisions that one would expect, even from scrutinizing the specifications on paper. The following is a registration sample using two manuals and Pedal:[16]

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[13] Owen, 145.
[14] Williams, *European Organ*, 119.
[15] Sumner, 57.
[16] Johann Mattheson, *Der vollkommene Capellmeister*, revised translation with critical commentary Ernest C. Harriss (Ann Arbor, Michigan: UMI Research Press, 1981), 842.

Hauptwerk:	Trompette 16'	**RückPositiv:**	Gedackt 8'
	Spitz-Flöte 8'		
	Octave 4'	**Pedal:**	Principal 16'
or			SubBass 16'
Oberwerk:	Trompette 8'		Dulcian 16'
	Zinck 8'		Posaune 16'
	Flöte 4'		Trompette 8'
	Nasat 2⅔'		Cornet 2'

This unusual registration appears to be for a piece of music in which the loudest voice is in the Pedal—most likely, a chorale prelude with the chorale tune in the Pedal—and the complete texture is that of a trio. The suggested pedal registration produces, in normal situations, a massive sound. The Gedackt 8', frequently used when soft accompaniments are needed, is totally overpowered, not only by the pedal registration, but also by either of the other two manuals. Williams reminds us that the Rückpositiv would be the set of pipes closer to the congregation than would be the Hauptwerk. The physical location of the pipes might compensate for apparent volume discrepancies between the Rückpositiv and the Hauptwerk and Oberwerk.[17] However, my experiences with this situation do not support Williams' assessment. There are too many variables—size of the room, construction materials, size of the divisions—to rely on physical location to offset all of them.

Mattheson's registration for a four-manual instrument and Pedal also raises numerous questions.

[17] Williams, *European Organ*, 120.

Hauptwerk:	Principal 16'	**Brustwerk:**	Principal 8'
	Octave 8'		Quintadena 8'
	Octave 4'		Octave 4'
	Octave 2'		Sesquialtera II
	Rauschpfeiffe II		Quintflöt 1⅓' (Optional)
	Mixtur		
		Pedal:	Principal 32'
Oberwerk:	Principal 8'		Principal 16'
	Scharff		Octave 8'
			Octave 4'
Brustwerk:	Principal 8'		Mixtur
	Octave 4'		Rauschpfeiffe
	Scharff		Gross-Posaun 32'
			Posaun 16'
			Trommet 8'
			Schallmey 4'

Like the registration presented on the previous page (95), this recipe appears to be quite heavy (loud) on the pedal side of the formula. The complete registration contains twenty-six stops. Yet, almost half of those stops are on the Pedal. The last four stops listed under Pedal in the above specification are reed stops and reeds are usually the loudest stops on an organ. The manual registrations contain no countering reed sounds. As Barbara Owen states,

> It should be understood that all of these combinations, including those for the Pedal, were to be used independently; coupling of manuals (and even of manuals to Pedal in organs of this size) was still rarely employed in the North.[18]

Therefore, the organist could not expect to better balance manuals and Pedal by coupling manuals together. The Hauptwerk comes closest in size to the Pedal, but only in very unusual circumstances would the Pedal not overpower it. The only use of the Oberwerk and Brustwerk would be in manual-only passages. However, situations requiring two manual-only registrations are not often found.

[18] Owen, 146.

An additional source on registration is the builder, Gottfried Silbermann. To my knowledge, it was not customary for a German builder of an instrument to offer his suggestions for registrations. Nevertheless, this was done by Silbermann (1683-1753) on two separate occasions. In reality, builders—even today—likely have very specific thoughts about the best use of and combinations of stops for their instruments. However, the performer might not always welcome those suggestions.

The two sets of registrations, neither of which survive in Silbermann's own hand, were for organs at Grosshartmannsdorf (1741) and Fraureuth (1742). The registrations at Grosshartsmannsdorf were located inside the organ in 1780 while repairs were being carried out and were rewritten by J. G. Schencke.[19] The information from Fraureuth was actually written down by the church priest, perhaps as dictated by Silbermann. Both instruments had two manuals plus Pedal and were almost identical in makeup. Since these recipes were written for specific instruments, they are different from those of Kaufmann. Neither organ had 16' sounds on either manual; thus from the beginning, there was a vast difference between the suggestions of Kaufmann and those of Silbermann. Silbermann's organs included a variety of sounds in the upper range of the organ —pitches sounding at the 2 2/3', 2', 1 3/5', 1 1/3' and 1' range—and these sounds figure prominently in the suggestions made by Silbermann.

Silbermann offered registrations that were oriented toward specific categories of stops. For example, there was a 'flute registration,' a 'lute

[19] Nortjé, 102.

registration' and a 'cornet registration,' among others.[20] The 'flute registration' encompasses the entire organ with specifications for two manuals and Pedal, while the 'lute registration', a perfect example of orchestral thinking, was applicable to a single manual only and involved the use of Gedackt 8', Rohrflöte 4' or Gemshorn 2' as an accompaniment. Some of the suggestions—Cornet, Nassat and Tertian registrations—are, perhaps, reflective of French influences on Silbermann by way of the brother with whom he trained, Andreas.

In spite of the effort made to convey these registrations to organists, they were not out of the ordinary in any way. Sumner goes so far as to say that the "combinations show the Latin influence and were not typically German, but such schemes of registration were known and used in Central Germany in the eighteenth century."[21] Perhaps, "safe" is the best way to describe them, as others have, and, likewise, may be used to describe his style of organ building.

> One registration of interest is for a *Stahlspiel*. Barbara Owen states that
>
> > *Stahlspiel* is another name for metal bar chimes or Glockenspiel, and such percussion instruments were known in Germany . . . from the seventeenth century. Silbermann's *Stahspiel* would appear to be a novelty registration; the off-unison mutations and gapped makeup do indeed produce a bright metallic effect.[22]

The specific registration—Gedeckt 8', Nassat 2 2/3', Tertia 1 3/5' and Quinta 1 1/3'—was totally counter to the admonitions against "gap" registrations of the early eighteenth century.[23] Nevertheless, this particular combination of sounds

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[20] Owen, 170.
[21] Sumner, 59.
[22] Owen, 171.
[23] Gap registrations are those that omit octave- and/or unison-sounding pitches from a registration that incorporates mutation stops.

must have served Silbermann's purpose. His attempt to maximize available sounds, available stops, is still an indispensable aid for organists of today and encourages all organists to be so versatile.

Silbermann included 8' and 4' flutes in his *plenum* registration, and the two stops were the foundation for accompanying his solo registrations. Both the Gedact 8' and Rohrflöte 4' or Rohrflöte 8' and Oktave 4' specified the pedal Subbass 16' to complete the registration, presumably, with the manual stops coupled to the Pedal. Each of these organs had Hauptwerk to Pedal couplers, but they were not included in the instructions even when the *plena* used the manuals coupled together.

Registration suggestions given by Jacob Adlung (1699–1762), like those of Mattheson, dealt mostly in generalities, not with specific registrations. Adlung's suggestions appeared in his *Musica mechanica organoedi*, published posthumously in 1768 although written in the 1730s[24] and in *Anleitung zur musikalischen Gelahrtheit* (1758).

In the *Musica mechanica organoedi,* Adlung presented hypothetical manual registrations—combinations—based on the following list of stops, all on a single manual:

Gedackt 16'	Quinte 2⅔'
Principal 8'	Oktave 2'
Quintatön 8'	Mixtur
Oktave 4'	Zimbel

[24] Faulkner, 61.

Adlung suggested thirty-five different combinations of these eight stops. The unison or octave-pitched stops are fairly evenly distributed in those thirty-five recipes. Such an equal allocation of stops results in sounds that had been previously avoided (there are ten 'gap' registrations) or whose use cannot be immediately determined, namely, a combination such as Octave 4', 2' and Mixture.[25] It seems obvious from Adlung's suggestions that he believed in experimenting with all sounds available to him and went so far so to chide the organist who remained on the traditional side of registrations. When the organist extends these recipe permutations to more than one keyboard,

> so emerge so many variations that an organist would not succeed in using every one in many hundreds of years if he tried. Therefore I don't [*sic*] see why many organists always stay with one. Variation is and indeed remains the soul of music.[26]

Again, stating his case for variety, Adlung says,

> In music variation is the soul. Therefore one should have many voices to use, flutes and reeds, so that one may vary even more. One should therefore use now this one, now that one, selecting now this, now that together. This, though, depends on the ear, and one should select according to opportunities. I have lived in places for many years, and can indeed say, that in many years I have not selected every register, not even once.[27]

Peter Williams affirms the position rather succinctly: "Adlung wanted all stops to be used frequently, changed frequently, . . . drawn alone or with others."[28]

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[25] This combination of stops might be one that was expected to be played an octave lower than was indicated on the written page.
[26] Adlung, 165.
[27] Ibid., 167.
[28] Williams, *European Organ*, 144.

One unique piece of advice from Adlung concerning registration was his recommendation to complete any specific registration within the span of a single keyboard. He would not have approved of Bach's planned use of the strings at Mühlhausen. There, Bach's enlargement scheme for that organ called for a string that could be coupled with the existing string on another manual, thus creating with the Pedal Violone 16', a string ensemble. This concept was not satisfactory to Adlung.

> For I consider each clavier [to be complete] in itself, without consideration of the others. According to this rule, should one play with two claviers at the same time, selecting the Quint 3' [2 2/3'] in one without the 4' or 8', desiring to make it good with the 4' in the other, he has not hit the nail on the head. Each clavier must be correct in itself.[29]

In spite of Adlung's admonition, this technique of combining stops, outside the context of *plenum,* from two or more manuals is still used today. It is a procedure that must be applied carefully so as not to upset the balance of registration, but, nevertheless, one that is called into use regularly.

Adlung also gave instructions for creating mixtures for those organs that were not already equipped with them. Although he encouraged organists to experiment with the sounds available on their instruments, Adlung went so far as to actually put pen to paper on the subject of mixtures. The sound of a Rauschpfeife could be created by using an Octave 2' and a Quinte 2 2/3' together. A Sesquialtera sound would be made with "the Quinte 3' [2 2/3'] and the Terz over Octave 2'."[30] These instructions may be especially helpful to untrained organists.

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[29] Adlung, 162.
[30] Ibid., 166.

Like Kaufmann, Adlung encouraged the organist to use the upper and lower ends of the keyboards if it resulted in better use of the sounds available. If the organ had an insufficient number of lower-sounding pipes, the organist could play an octave lower.

> It may also happen that the Gedackt 8' is not available on account of various causes. If the same is necessary in the music (or also in its place the Quintatön 8'), but it may not be selected, or is simply not present, so one chooses the Quintatön 16', and plays always in the octave higher, for thereby one emulates the 8-footed. And so one may (and must) often help oneself, in that one makes small registers of large and of large small.[31]

One other practical bit of advice that Adlung presented pertained to the use of the left hand to cover fast pedal passages, if all else—including the availability of a second keyboard—allowed such a thing to happen.

> The left hand can also play the bass notes on such a clavier with the large registers, instead of the pedals . . . for running notes can not be performed as comfortably in the Pedal as the Manual. If slow notes come, so the Pedal may be once more used and the Manual left.[32]

Adlung's suggestions were of a very practical nature in addition to being experimental in spirit and were related to Kaufmann's suggestions already mentioned.[33]

Adlung made special note of two stops seldom called to attention in such writings about registration. One stop was the Unda maris, one of the newer stops —sounds—arriving on the organ scene. Adlung instructed that it had to be used with a principal of the same pitch and "nothing else—a usage reminiscent of the Voce Umana [Vox humana], which was still very much in vogue in northern

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[31] Ibid., 164.
[32] Ibid., 171.
[33] See discussion on pp. 89-93.

Italy."[34] The second stop mentioned was the Glockenspiel. Adlung suggested using it in broken chords. Serious organists have always questioned the "plaything nature" of the Glockenspiel; thus it is interesting that it received such attention in Adlung's tome.

The registration information left by Agricola (1720-74) appears in two publications: in Adlung's *Musica mechania organoedi* (1768) and in Marpurg's *Historisch-Kritische Beyträge* (1758).[35] Agricola made no claim in his written appendage to Adlung's book that his ideas were also those of Bach. However,

> Agricola mentions his teacher's [Bach's] name six times in his notes to Adlung's *Musica mechanica organoedi*; of those six, three cite Bach as an authority in modifying or refuting an opinion expressed by Adlung on organ design and registration.[36]

It would not be improbable for one to assume Bach's tacit approval of Agricola's practices in light of the frequent mention of his name.

Agricola followed the restrictions that had been in place for several decades already, especially in regard to gap registrations. There was to be no "playing on a 4' stop without an 8' foundation."[37] Registrations using mutations had to include the octave stop above the mutation. This restriction prevented the mutation stop from being the topmost sound played and heard. Such a sound, with a mutation on top, is quite French in nature and was becoming well known in Germany at this time. In view of that fact, Agricola's admonition against it is even more interesting.

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[34] Owen, 166.
[35] Nortjé, 105.
[36] Faulkner, 62.
[37] Ibid., 61.

Nonetheless,

> Agricola seems to be the unique source for suggestions for single-line registrations, such as one might employ in performing an organ trio. He rejects gapped registrations (such as 8' and 2') for playing fuller textures, but seems to allow them for playing a single melody on a given manual.[38]

Not only would the combination of 8' and 2' stops be acceptable for a solo line, especially in trios, but Agricola also suggested the possibility of using a Quintadena 16' and a Flute 4' or even a Bourdon 16' with a Sifflet 1'. The latter combination is also recommended for rapid passages. Faulkner reminds the reader that

> "his [Agricola's] suggestions may seem strange to modern ears; they need to be understood again in light of the enthusiastic appreciation for solid 16' foundation tone prevalent during (and long after) his day. The distinction he draws between playing a full texture and playing a single melody . . . is likewise unique, and particularly helpful in its application to the music of J. S. Bach.[39]

Agricola advised against the use of reed stops by themselves. Ascribing to such an admonition would preclude the use of any of the solo reed stops—Regal, Schalmei, Krummhorn—by themselves. The reed stops just named had served to sound the *cantus firmus* in organ music for decades. For Agricola, all reed stops were to be used with a flue stop—principal, flute or string—of the same pitch. Agricola mentioned one practical reason for his precaution: the flue stop would muffle any rattle created by a reed's vibration. However, a problem with vibrations from reed pipes, in particular, usually comes from the large reeds—Fagott, Posaune—in their lower ranges. Despite this restriction on the use of

[38] Ibid.
[39] Ibid.

reeds by themselves, Agricola thought reeds quite suitable as a foundation stop for "several higher-pitched flue stops."[40]

The final source for registration information in this study is Friedrich Wilhelm Marpurg (1718-1795). A theorist—rated in the class of Werckmeister, Adlung and Mattheson—composer and organist by avocation, Marpurg wrote extensively about music.[41] A native of Brandenburg, Marpurg spent a good deal of his time in France for both business and pleasure; consequently, he was familiar with the organs of both countries. Marpurg published a weekly bulletin in the late 1740s, *Der critische Musicus an der Spree*, which included his ideas about the duties of an organist, in general, and, more specifically, his suggested registrational recipes. Many of his registration proposals are categorized with French titles: *Tierce en taille*, *Basse de Cromhorne* and *Basse de Trompette*, among others. However, Gregory Crowell, writing about the *Tierce en taille*, states

> In fact, his [Marpurg's] registration was almost certainly tailored to suit German organs—as it stands with its 16' in the Pedal and the 1' in the Positive, this registration could hardly have been realized on most French organs of the day anyway.[42]

Despite the French connection,

> Marpurg directly aligned himself with other Germans who had written about the duties of an organist, and indeed his stated intention was to supply the registration suggestions that Johann Adolph Scheibe regretted leaving out of his *Critischer Musikus* of 1738-40. Most of Marpurg's

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[40] Nortjé, 109.

[41] Marpurg wrote the preface to the first edition of Bach's *Art of Fugue*, which was published posthumously in 1751/52.

[42] Gregory Crowell, "Gallomania, Marpurg, and Bach: Registration Possibilities for Bach's Late Organ Works," *The American Organist* 30, no. 10 (1996): 65.

> registrations have been designed in a way that, while certainly paying homage to their French inspiration, create a stylistic synthesis more sympathetic to the practices and instruments of Central Germany.[43]

Marpurg was certainly not the first German musician to use registrations with a French taste. Bach's student, Agricola, was knowledgeable about the potential use of French registrations with German music. Additionally, the French influence in Silbermann's background is evident in his extant registrations.

Marpurg had some associations with Bach during the later years of Bach's life.

> It is not known just how well Bach and Marpurg knew each other, though there is no doubt that they often had occasion to engage in detailed discussions about music, and performance. . . . The two men are known to have discussed French music and performance style with one another. . . . Bach was probably also familiar with Marpurg's article on registration, since copies of Marpurg's periodical were sold in Leipzig as well.[44]

It is, then, quite reasonable to posit a connection between Marpurg's registrational ideas and the organ output of Bach's last years.

In fact, Marpurg's organ compositions were very old-fashioned for his time, written in a style more typical of works from Bach's generation, chorale-based duos and trios, even *stile antico* fugues. Marpurg's registrations were given for a hypothetical instrument that was heavily weighted with sounds of the French Baroque organ. But Marpurg's inclusion of a Principal 8' and a Spitzflöte 1' in his registration for *Tierce en taille* was much more common to a German organ. As Crowell states,

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[43] Ibid., 64.
[44] Ibid.

> The inclusion of a Principal 8 [*sic*] in the left-hand registration allows for a strong fundamental, even in lines that go quite low. . . . In addition, the presence of a 1' stop in the solo registration reinforces the fundamental pitch, and helps to life the left-hand voice out of the texture without obscuring the upper voices.[45]

A look at the recipes for solo combinations and trios reveals a surprising number of suggestions that are completely lacking a 16' sound in the Pedal. Most of these examples are based only on flutes 8' and 4' in the Pedal, a big change from previous pedal registrations and distinctly French in nature. The 16' stop is a Gedeckt, so principals and reeds are completely omitted from all combinations except those that are *plena.*

Like Adlung, most of Marpurg's registrations involving a reed stop show the use of the Principal 4' with the reed, also a French characteristic. Those instances where Marpurg does not use the principal with the reed are typically those that specify a reed stop on both manuals—Trumpet and Cromhorne or Cornet and Cromhorne. Kaufmann, too, often used reed sounds on both manuals.

In twenty-two registration formulae given by Marpurg, only three are not colored with reed sounds or mutations, pitches at the twelfth or fifteenth. This data provides additional support of Marpurg's affinity for colors similar to that available on French organs. There is a significant lack of suggested registrations that consist of octave- and unison-only flue stops. Such a registration would be exemplified by combinations of stops at the 16', 8', 4', 2' and/or 1' pitches, i.e., Flutes 8' and 4' or Principal 8' and Flute 4'.

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[45] Ibid., 65.

The information presented in this chapter and throughout the paper suggests that the range of possibilities available to Bach was much broader than is commonly thought today. Given the potential sounds on German Baroque organs, Bach's registrations could have been quite colorful. He had a choice of low-sounding registrations or brilliant-sounding ones. He had the ability to expand the range of certain families of stops by playing 4' stops an octave lower or 16' stops an octave higher. He could have kept the stops the same throughout a movement, or—just as likely—varied them. He liked percussive stops—another orchestral effect—and, undoubtedly, used them. He now had the option to combine stops of the same pitch of different families even though there are still organists today who advise against such usage. Bach could have used any combination within this enlarged range of possibilities or he could have struck out on his own. He liked to combine stops in unlikely ways and organists who heard these combinations were amazed that they were so effective. In short, we can only be certain that the range of possibilities is far greater than organists currently imagine.

Although nothing specific can be said about any registration that Bach may have used except for those previously cited, it seems reasonable that his choices were more orchestral than many people realize today. Almost certainly, his registrational approach was not the same for each instrument but accommodated the aesthetics of the three builders discussed—Schnitger, Silbermann and Hildebrandt. He surely registered each of the primary categories of instruments discussed in a way that best suited the instrument and—based on

Forkel's statement about Bach's peculiar manner of combining stops[46]— Bach must have been quite sensitive to the offerings of each particular instrument.

[46] See chapter 1, page 4 of this document for Forkel's complete quote.

Appendix A

Table of Organ Stops
Found in Organs Played, Examined or Heard by Bach

How to Use the Table of Organ Stops

A few words will assist the reader to understand the content of the following table. The stops included in the table are taken from the organ specifications in Appendix B (pp. 124-162). These are organs that were known to Bach or that were likely to have been known by him, organs that he heard, played or examined. It is important to remember that the material under discussion is more than two hundred and fifty years old. Bach lived during a period when uniformity and standardization were not practiced. There was no standard spelling in general, including organ stops. It was not atypical for a builder to use two different spellings for the same stop name on a single organ. The numerous alternate spellings are listed in parentheses following the initial listing.

The descriptions given are based on currently available knowledge on the instruments covered in this study. There are numerous instances in which our current knowledge about specifically named stops differs from the same-named stop of Bach's time. For instance, a Gedeckt in the twenty-first century is usually considered to be a stopped pipe made of wood that can be found on manuals or Pedal at pitches ranging from the 32' pitch on the Pedal to the 4' pitch on the manuals. However, on these specific organs—of nine Gedeckts listed—eight of them were made of metal. There are no pedal Gedeckts among them and those on

the manuals exist only at 8' and 4' pitches. These differences should be kept in mind when studying this information.

The names of stops are spelled and listed in accordance with the sources cited. Foot lengths are translated into modern terminology. For example, a pipe length of 3' is changed to 2 2/3' since this is currently the foremost method of designating the pitch of these pipes of non-unison or non-octave length. In addition, the nomenclature is not consistent and, occasionally, is quite unclear. A case in point occurs with the organ in Potsdam at the *Nikolaikirche.* One of the manuals lists a Tertian at 1 3/5' pitch. If, in fact, it were a stop that speaks at the specified pitch of 1 3/5', the correct stop name would be Tertia or Terz. If the name—Tertian—is correct, then it is a compound stop and should be designated as a two-rank mixture, II.

TABLE OF ORGAN STOPS
Found in Organs Played, Examined or Heard by Bach

Baarpfeiffe (Barpfeiffe)	An 8' reed stop of the Regal family found on the manuals.
Barem	A 16' soft stopped flute found on the manuals, almost identical with the Stillgedeckt.
Bass	Suffix that denotes a stop on the Pedal.
Basson	See Fagott.
Bauer Flöthe (Bauerflöte)	A small-scaled, stopped, pedal flute at 2' and 1' pitches.
Blockflöte (Blockflöht, Block-Flöte)	A large-scaled, conical metal flute usually at the 2' pitch, occasionally at 8' and 4' pitches. Found on the manuals, it is open or stopped and imitative of the recorder.
Bombart (Bombard)	A loud manual reed stop at 16' and 8' pitches that is sometimes made of wood and metal.
Bordun (Bourdon, Bourdunbass)	A stopped**,** narrow-scaled flute usually made of wood for lower pipes and metal for upper pipes. Most often found at 16' pitch on the manual but also available at 8' pitch on manuals and Pedal.
Cilinderquinte	A manual Quint stop made with small-scaled cylindrical pipes that sound at the 2⅔' pitch.
Cimbel (Cymbal, Zimbel, Scharff, Cembel, Cymbel, Cimbeln, Symbel, Cimpel)	A compound stop of multiple ranks of open, metal, principal pipes sounding high-pitched fifths and octaves above the unison pitch; likened to orchestral cymbals. Most often found on the manuals, rarely on the Pedal.
Clarin (Clarinbass, Cleron)	A chorus reed of the Trumpet family, found at the 4' pitch on the manuals or Pedal.

Cornet (Cornett, Cornetti, Cornetto) — A compound stop of three to five ranks on the manuals and often placed on its own chest. The five-rank Cornet is composed of pitches at 8', 4', 2⅔', 2', and 1⅗' levels. If three ranks, the 8' and 4' pitches are drawn separately.

Cornet-Bass (Kornett, Cornet, Cornett, Cornettin, Corneto) — A 2' reed stop on the Pedal, occasionally found at the 4' pitch. Adds brightness to the pedal tone. Not to be confused with Cornet (See above listing).

Cornetti (Cornetto) — The upper ranks of the Cornet stop found on the manuals and the Pedal—2⅔', 2' and 1⅗' pitches.

Decima nona — A mutation rank at the 3' (2⅔') pitch. The pitch is correct, but the name is not correct for the footage given.

Dulzian (Dulcian) — An imitative reed stop available on the manuals at 16' and 8' pitches and on the Pedal at the 16' pitch.

Dulzflöte — A soft, open flute at the 8' pitch on the manuals and made of metal or wood.

Enge Gedackt — A narrow-scaled, stopped flute at the 8' pitch on the manuals.

Fagott (Fagottbass) — An imitative reed stop of wood and metal, found on the manuals and Pedal at the 16' pitch. Pipes are narrow-scaled and conical.

Feld-Pfeiffe — A narrow-scaled, open, penetrating flute stop on the manuals at the 2' pitch.

Flageolet — An open metal flute at the 1' pitch on the manuals.

Fleute Douce (Flötedouce, Flute Douce, Flaute douce) — A soft, metal (sometimes wood) 4' open flute on the manuals**.**

Fleute-Travers (Flaut Trav., Flötetraversiere) — An open, wide-scaled pipe imitating the orchestral, transverse, flute at 8' and 4' pitches on the manuals. When at the 8' pitch, this stop occasionally does not go below middle C.

Flaute traversenbass — A 16' pedal stop of wood and metal, imitative of the orchestral flute. It is open all the way to low C. Very rare.

Flöte	A stopped flute at 4' and 2' pitches on the manuals and at the 4' pitch on the Pedal. It can exist with a defining prefix that defines its sound, i.e., Dulzflöte, Blockflöte, Bauerflöte**.**
Flöten Bass Gedackt	A 16' stopped flute in the Pedal.
Flöte Allemande	An imitation of the orchestral flute at the 8' pitch on the manuals. It is open, narrow and made of wood.
Fugara (Vugara, Vugam)	An open stop of wood or metal on the manuals at 8' and 4' pitches. Its tone is usually a combination of string and horn, but sometimes, a gamba-like tone. Rare at 8' pitch.
Gedackter unterbass (Untersatz, Subbass, Suppas)	The primary stopped bass rank of the organ found at 32' and 16' pitches on the Pedal and at the 16' pitch on the manuals. The pipes are usually of large scale with thick walls, making their tones dull. Most often made of wood.
Gedact/in Cammer-ton	A stopped 8' flute on the manuals that is tuned at chamber pitch, which is higher than church pitch. Rare.
Gedeckt (Gedact), (Gedackt), (Gedacktes)	A stopped flute usually made of metal, rarely wood; found on the manuals at 8' and 4' pitches.
Gedackte Flöte	A Gedeckt at the 4' pitch on the manuals. It becomes open in the higher ranges of the keyboard.
Gedackte italienische Quinte	A wide-scaled, stopped flute at the 2⅔' pitch on the manuals. It becomes open in the higher ranges of the keyboard.
Geigen-Principal	A principal and string hybrid stop found at the 8' pitch on the manuals.
Geigenregal	A gentle Regal and string hybrid at the 4' pitch on the manuals.
Gemshorn (Gemsshorn)	A hybrid flute and string stop at 8', 4' and 2' pitches on the manuals, rarely on the Pedal.
Gemsquinte (Gemsquinta)	A hybrid flute and string stop on the manuals and Pedal that sounds a twelfth above the unison pitch. There are instances in the specification lists that do not seem to fit the traditional definition.

Grob (Gross) — This prefix denotes either (1) a stop that sounds one octave below its regular pitch or (2) a stop that is of large scale. (See **Super**.)

Grobgedackt (Grob Gedackt, Grob Gedakt) — A Gedeckt of large scale, most often at the 8' pitch—rarely at the 16' pitch—on the manuals.

Gross Hall-Quinta — A wide-scaled, loud Quint of 5⅓' pitch on the Pedal.

Gross Octav — A large-scaled principal at the 8' pitch on the manuals.

Grossquintatön (Gross Quintadena) — A narrow-scaled, stopped pipe found at the 16' pitch on the manuals.

Gross-Posaun — A loud reed stop of 32' pitch on the Pedal.

Grosser Untersatz — A stopped wood rank at the 32' pitch on the Pedal.

Hautbois (Oboe, Hoboi) — A reed at 8' and 4' pitches on the manuals.

Helle Cymbel II — A very bright-toned Cymbel mixture of two ranks.

Hohlflöte (Hohl-Flöth, Hohlflöthe, Hoelflöten, Hohl-Flöte, Hohlflöt, Hohe Fleute, Hollflött, Hohl Flöte, Hollflete) — A large-scaled flute that is usually open and usually of wood; however, stopped and chimneyed versions do exist. Found on the manuals at 8', 4' and 2⅔' pitches and the Pedal at 16', 4' and 1' pitches.

Hohl Quinte — A Hohlflöte at the 2⅔' pitch on the manuals.

Jubal Bass — A dull principal at the 8' pitch on the Pedal. There are two mouths per pipe, usually on opposite sides of the pipe.

Klein Gedackt (Kleingedackt, Klein Gedakt, Klein-Gedackt) — A Gedeckt at the 4' pitch on the manuals.

Kleine Krumhorn — A Krumhorn at the 4' pitch on the manuals.

Kleine Octava — A principal at 2' and 1' pitches on the manuals.

Kleine Quinta — A principal at the 1⅓' pitch on the manuals.

Krumhorn (Krummhorn, Krumbhorn)	A reed sound imitative of the crumhorn instrument, constructed in a variety of ways. Located on the manuals at 16' and 8' pitches and at the 8' pitch in the Pedal. Can be found with full or half-length resonators.
Largo	A wide-scaled, open mutation stop at the 1⅓' pitch on the manuals.
Leises Gedakt	A soft Gedackt at the 8' pitch on the manuals.
Lieblich Gedackt	A lovely ("lieblich") stopped, wooden flute at 8' pitch on the manuals. Its scale is usually smaller than that of the Gedeckt.
Lieblich Gedackt zur Music	See **Lieblich Gedackt**.
Lieblich Posaune	A chorus reed of wood at the 16' pitch on the Pedal. It is softer than the regular Posaune.
Mixtura (Mixtur)	A generic name for all manual and pedal stops of two or more ranks drawn from the same stop knob. The term generally applies to stops composed of octave and fifth sounding ranks of open metal pipes.
Nachthorn	A large-scaled, stopped metal flue rank of 8', 4', 2' and 1' pitches on the Pedal and the 4' pitch on the manuals**.** The tone is an interesting combination of "stopped flute" and "soft French horn".
Nasat (Nassat, Nasard)	This flute stop sounds a twelfth above the 8' unison pitch on the manuals. Usually an open metal stop, but examples also exist of capped metal, chimneyed metal and stopped wood.
Octava (Octave, Octav, Oktave, Octavenbass, Oktava, Octavbass)	A foundation stop of principal tone at 8', 4', 2' and 1' pitches on manuals and 16', 8', 4' and 2' pitches on the Pedal. An open, small-scaled, cylindrical metal pipe.
Octavina	A 2' principal on the manuals.
Offener Principal	A principal at the 8' pitch on the Pedal.

Posaune (Basaune, Posaunen, Posaun, Posauna, Posaune, Posaunen-Bass, Posaunenbass, Possaun Bass) — A loud, ensemble reed of wooden pipes at 32', 16' and (rarely) 8' pitches on the Pedal. The tone is intended to imitate as closely as possible the orchestral trombone and is not so loud as the modern stop of this name.

Posaunen-Untersatz — A Posaune stop that appears at the 32' and 16' pitches on the Pedal.

Principal (Prinzipal, Praestant) — The chief unison flue stop on manuals and Pedal made of open wood or metal.

Principalbass — A 16' or 8' Principal on the Pedal.

Querflöte (Querflöht) — A variant of a small-scaled flute that most closely imitates the orchestral (transverse) flute. It is made of wood or metal and is found at 8' and 4' pitches on the manuals. (See **Fleute-Travers**)

Quinta (Quinte, Quint) — A mutation stop on the manuals of the principal family. It sounds the twelfth above the unison (8') pitch and is designated as 2⅔' pitch.

Quinta auf Principal — See **Quinta**.

Quintade — A stopped metal flute of large scale where the twelfth is strong, like the Quintaton. Found at 16', 8' and 4' pitches on the manuals and at the 4' pitch on the Pedal.

Quintadecima — A 4' stop of quiet open flute or principal tone on the manuals.

Quintadena (Quintatena, Quintaden, Quintaton, Quintatön, Quintathoen, Qüinta Thön, Quintathöna) — A stopped flute in which the twelfth is pronounced. It is most often metal, rarely made of wood, or it can be a combination of wood and metal. Found at 16', 8' and 4' pitches on the manuals.

Quinten Bass (Quintadehn Bass, Quintatön-Bass, Quintadenabass) — A Quintadena found at the 16' pitch on the Pedal.

Quintflöte (Quintflöht) — A non-imitative flute-toned stop in which the twelfth is prominent. Made of stopped metal or wood, it can be found on the manuals at 5⅓', 2⅔' and 1⅓' pitches.

Quint-Nassat — A Spitzflöte found at the 2⅔' pitch on the manuals.

Ranket — A reed stop of the Regal family found at the 8' pitch on the manuals. It is named after the sixteenth-century instrument of the same name. Characterized by short resonators.

Rauschpfeiffe (Rausch Pfeiffen) — A chorus mixture on the manuals, usually two ranks of open metal flute pipes at 2⅔' and 2' pitches.

Rauschflöte (Russflöte) — A compound stop of two, non-repeating, open ranks of flue pipes; sound is somewhere between that of a flute and a principal; found on the manuals at 2' and 1 1/3' pitches.

Rausch-Quinte (Russflöte) — A compound stop of two unbroken ranks of open, metal flue pipes, two of which stand an interval of a fourth apart and sounding 2' and 2⅔' pitches.

Rauschquinte doppelt — A Rauschquinte is found on the manuals, with two mouths on each pipe. The mouths are opposite each other on the pipe.

Regal — A generic name for a large family of sixteenth-century reed stops at the 8' pitch on the manuals. Resonators were half-length.

Rohrflöte (Rohrflötenbass, Rohrflött, Rohr Flöt, Rohrflete, Rohrflöt) — A stopped, metal flute that is pierced at the top to allow a smaller pipe to be inserted; consequently, also called "half-stopped." Found at the 1' pitch on the Pedal and at 16', 8' and 4' pitches on the manuals.

Salicet — An open, metal string of smaller scale than a Salicional, at the 4' pitch on the manuals.

Salicionale (Salicional, Salicinal) — A narrow-scaled, open metal stop found at 8' and 4' pitches on the manuals. It has a slight stringiness to its sound.

Schallflöt — An open flute found at the 1' pitch on the manuals.

Schallmey (Schalemoy, Schalmey, Schalmei, Chalumeau, Schallmey, Schallmeyenbass) — A stopped, soft imitative reed which sounds like the old Shawn, precursor of the clarinet. Found at 8' and 4' pitches on the manuals and at the 4' pitch on the Pedal.

Scharf (Scharp, Scharfe, Scharff) — A brilliant, high-pitched chorus mixture of III to VIII ranks found on the manuals and voiced to provide a piercing tone.

Schweizer Bass — A Swiss flute found at the 2' pitch on the Pedal.

Schweizer Pfeiffe — A Swiss flute of very narrow, open pipes or of an inverted cone shape, found at the 1' pitch on the manuals.

Sedecima — A principal found at the 1' pitch on the manuals. The name is not correct for the footage given. Sedecima actually means seventeenth and, thus, should be designated at 1⅗' pitch.

Sertin — A stopped reed found at the 8' pitch on the manuals.

Sesquialtera (Sesquialter, Sexquialtera, Sexquintaltra) — A compound stop of reedy quality that usually consists of two ranks of open metal pipes of medium scale. Comprised of pitches at 2⅔' and 1⅗' on the manuals.

Sifflet (Sifflöt, Sifflöte, Sufflet, Süfflött, Ciflet, Sifflöth) — A small, open metal flute of medium scale at 2', 1' and 1⅓' pitches on the manuals.

Sordino, or Muted Trumpet — A soft 8' reed made of metal and found on the manuals.

Spielpfeiff (Spielpfeife) — A soft flute made of open, cylindrical pipes that taper at the top. Found at 8', 4' and 2' pitches on the manuals.

Spill- or Spitzflött (Spiel-Flöte) — See **Spielpfeiff**.

Spill-Flöthen (Spielflöte, Spillflöten) — See **Spielpfeiff**.

Spitzflöte (Spitz-Flöte, Spitz-Flöthe, Spitzflöt) — An open metal flute made with a variety of scales but always with the same form: tapering inward from the mouth to the top of the pipe. Found on the manuals at 8', 4' and 2' pitches and on the Pedal at the 2' pitch. Sounds much like a **Gemshorn**.

Spitz-Quinte — A conical-shaped, soft principal found at the 2⅔' pitch on the manuals.

Stillgedackt (Stillgedakt) — A soft, wooden, stopped flute at the 8' pitch on the manuals.

Stimme Dulcian Arth — "A voice of the Dulcian sort" according to the specification. A type of Dulcian at the 8' pitch.

Sub-bass (Subbass) — See **Gedackter unterbass**.

Super — A prefix that denotes a stop an octave above its usual pitch. (See **Grob**.)

Super Gemshörnlein — A small Gemshorn at the 2' pitch on the manuals with open pipes at the top of the rank.

Superoctav (Superoktave, Superoctava, Super Octave, Super-Octava, Super Octava) — An open metal principal found at 2' and 1' pitches on the manuals and at 4' and 2' pitches on the Pedal.

Tertia (Tritonus, Terz) — A mutation stop at the 1⅗' pitch on the manuals.

Traversa — See **Fleute-Travers**.

Trichter-Regal (Trechterregal, Trichterregal) — An 8' Regal stop on the manuals with short**,** funnel-shaped resonators.

Trommete (Trommet, Trompete, Trompeta, Trumpet, Trombet, Trommetenbass) — A reed stop with full-length, conical resonators. Made of wood or metal and built in a variety of ways. Found at 16', 8' and 4' pitches on the manuals and at 8' and 4' pitches on the Pedal.

Unda maris — A narrow-scaled, 8' open principal that is tuned slightly sharp or flat to another specific stop of the same timbre. It creates an undulating sound much like a Celeste and is found on the manuals.

Untersatz — A 32' pedal stop, usually made of stopped, wooden pipes.

Vigesima nona — Most often found on the manuals and sounds at the 1⅓' pitch.

Viola — An imitative string stop at the 2' pitch on the manuals.

Viola da gamba (Violdigamba, Viol di Gamba, Viol' di Gamba, Violadi Gamba) — A string stop that was intended to imitate the instrument for which it is named. Made most often of metal, but occasionally of wood. Pipe construction varies from cylindrical to conical. Found at 8' and 4' pitches on the manuals.

Violdigambengass — The pedal version of the Viola da Gamba, made of wood and found at the 16' pitch.

Violin — A 2' imitative string stop found on the manuals.

Violon (Violin-Bass, Violonbass) — A string usually of 16' or 8' length with more pitch definition than a Principal or Subbass. An open pipe made of wood or metal and found on the Pedal.

Vox humana — An 8' reed stop on the manuals that is intended to emulate the human voice. A soft reed sound of the Regal family usually with short, cylindrical resonators.

Waldflöte (Waldtflöht, Wald-Flöthe, Waldflött, Waldflete, Wald-Flöte) — A large-scaled, open flute stop of 2' and 1' pitches on both the manuals and the Pedal. Wood is preferred although it can also be made of metal.

Wald- or Dolkanflöte — A 4' flute of metal, inverted conical pipes with two mouths on opposite sides of the pipes, found on the manuals.

Waldpfeiffe (Waldflöte) — A large-scaled, open wood rank at the 2' pitch on the manuals.

Weit-Pfeiffe (Weitpfeiff) — An open, sharply voiced**,** large-scaled flute stop at 2' and 1' pitches on the manuals.

Zimbeln gedoppelt — A Zimbel with two mouths on each pipe.

Zincke (Zink, Cinke), (Zincken) — An 8' manual or pedal reed intended to imitate the tone of the obsolete wind instrument known as Zinken. Can also be found as a compound flue stop voiced to sound like a reed.

ACCESSORIES (TONAL)

Bird Song — A novelty stop that sounded like a bird or played a birdcall. The effect was created when the top of one pipe was bent over into a glass of water.

Cymbelstern (Cimbel-Stern, Cymbel Stern, Cimbel mit Sternen, Zimbelstern, Zimbelbells) — A tuned or untuned set of bells attached to a revolving star that is activated by wind.

Drum — Usually produced by two or more large-scaled pipes at the 16' or 32' pitch which were out of tune with each other. In some situations, a mute drum sat atop the organ case and was struck by angel figures.

Glockenspiel (Glocken-spiel) — A set of metal tubes or bars struck by hammers.

Kettledrum (Kettle-drum, Timpani) — Real timpani hit with drumsticks and activated by the Pedal or by foot-levers.

ACCESSORIES (VISUAL)

Eagles — "These fly toward the sun as if they were natural." (as stated on specification at Garnisonkirche in Potsdam. See Appendix B, p. 161.)

Pair of kettledrums, struck by angels. — Sometimes real timpani were provided, tunable and played by angels activated by pedal levers. More often, the drum-effects were produced by two or more large-scaled wooden pipes out of tune with each other.

Stars — "Two large stars at each side." [Probably a cymbelstern.]

Trumpet — "which causes certain angels to hold to their mouths the trumpets they have in their hands." (See Appendix B, p. 161.)

Appendix B

Organs Played (P), Examined (E) or Heard (H) by Bach

(Listed in the order in which they were encountered by Bach.)

EISENACH, *Georgenkirche* (H)
Georg Christoph Stertzing
1696-1707*

Hauptwerk

Bordun	16'
Principal	8'
Rohr Flöt	8'
Viol di Gamb	8'
Quinta	5⅓'
Octav	4'
Flöte	4'
Nassat	2⅔'
Sesquialtera III	
Mixtur VI	
Cimbel III	
Trombet	8'

Oberseitenwerk

Quintaden	16'
Gross Octav	8'
Gedackt	8'
Gemshorn	8'
Principal	4'
Flute douce	4'
Hohl Flöte	4'
Hohl Quinte	2⅔'
Super Octav	2'
Blockflöte	2'
Sesquialtera III	
Scharff IV	
Vox humana	8'

Brustwerk

Grob Gedackt	8'
Klein Gedackt	4'
Principal	2'
Super Gemshörnlein	2'
Sifflöte	1'
Sesquialtera II	

Unterseitenwerk

Barem	16'
Stillgedackt	8'
Quintaden	8'
Principal	4'
Spitz-Flöthe	4'
Nachthown	4'
Spitz-Quinte	2⅔'
Octav	2'
Rausch-Quinte	1½'
Super Octave	1'
Cimbel III	
Regal	8'

Pedal

Grosser Untersatz	32'
Principal	16'
Sub Bass	16'
Violon	16'
Octav	8'
Gedackt	8'
Super Octav	4'
Flöte	4'
Bauer Flöthe	1'
Mixtur V	
Posaun	32'
Posaun	16'
Trombet	8'
Cornet	2'

Accessories

Cymbelstern
Glockenspiel
Couplers: O/H; H/P
Two Sperrventils
Three Tremulants

Of note:
Absence of 2' on Hauptwerk

*Dates of construction when known.

Owen, 152.

OHRDRUF, *Michaeliskirche* (H)
Main Organ
Heinrich Brunner, 1685-1690

Manual

Quintadena	16'
Principal	8'
Grob Gedackt	8'
Oktava	4'
Quinta	2⅔'
Klein Oktava	2'
Mixtur IV	
Cymbel II	
Trompeta	8'

Rückpositiv

Stillgedakt	8'
Principal	4'
Nassat	2⅔'
Flöte	2'
Oktave	1'
Sesquialtera	

Pedal

Principal	16'
Subbass	16'
Oktav	8'
Mixtur III	
Fagott	16'
Corneto	2'

Small Organ
Rückpositiv, 1421

Grob Gedakt	16'
Principal	8'
Klein Gedakt	4'
Flöte	2'
Cymbel	

Of note:

- Pedal added later (perhaps only a coupler)

Blanchard, 7.

LÜNEBURG, *Michaeliskirche* (H)
Builder unknown

Oberwerk

Principal *	16'
Hollflete	16'
Octav	8'
Octav	4'
Gemshorn	2'
Nachthorn *	2'
Rauschpfeif II	
Mixtur IV *	
Tromet *	8'
Cornet *	2'

Brustwerk

Principal	2'
Waldflete	2'
Sexquialtera II	
Scharff III-IV	
Regal	8'

Rückpositiv

Principal	8'
Gedackt	8'
Rohrflete	8'
Quintadena	8'
Octave	4'
Nasat	2⅔'
Gemshorn	2'
Ciflet	1⅓'
Mixtur IV-V	
Schalmei	4'

Small Positiv
Builder unknown

Gedackt	8'
Gedackt	4'
Gedackt	2'
Kleine Krumhorn	

*Stops also available on the Pedal

Of note:
Brustwerk: no 8' or 4' flue stop
Rückpositiv: footage of Schalmei is questionable without 8' reed

Blanchard, 9

SANGERHAUSEN
Jacobikirche (H)
Ezechiel Greutzscher, 1603

Oberwerk

Grob Gedackter Unterbass	16'
Grob Quintaden	16'
Grob Principal	8'
Grobe Octava	4'
Grob Gedacktes	4'
Grobe Quinta	2⅔'
Super Octava	2'
Mixtur VIII	
Zimbeln III	
Zincken	8'

Brust

Regal [8'or 4'?]
Octava [4'or 2' ?]
Rauschpfeiffen gedoppelt

Rückpositiv

Principal	4'
Quintadehn Bass	4'
Hoelflöten	2'
Kleine Octava	1'
Kleine Quinta	1⅓'
Zimbeln gedoppelt	
Stimme Dulcian Arth	8'

Pedal

Flöten Bass Gedeckt	8'
Quinten Bass	5⅓'
Grob Posaunen Bass	16'
Corneten Bass	2'

Accessories:

Tremulant
Coupler: R/P

Of note:

Oberwerk: no 8' flute
Brust: Regal at 8' pitch and Octava 4' is more likely.
Rückpositiv: has no 8' foundation stop.
Pedal: Unless Gedeckt is 16', the only foundation stop at 16' is a loud Posaunen.

Blanchard, 23.

ARNSTADT
Bonifatiuskirche (P, E, H)
Johann Friedrich Wender, 1699-1703

Oberwerk

Principal	8'
Grossgedackt	8'
Quintatön	8'
Gemshorn	8'
Violdigamba	8'
Oktave	4'
Quinte	5⅓'
Mixtur IV	
Cympel doppelt II	
Trompete	8'

Brustwerk and Positiv

Stillgedackt	8'
Principal	4'
Nachthorn	4'
Spitz-Flöte	4'
Quinte	2⅔'
Sesquialtere doppelt II	
Mixtur III	

Pedal

Sub-Bass	16'
Principal-Bass	8'
Posaunen-Bass	16'
Cornet-Bass	2'

Accessories

Two Cymbelsterns
Tremulant
Couplers: B/O, O/P

Of note:
Brustwerk: Lack of 2'
Oberwerk: Such a large number of 8' stops is very interesting considering the single 4' and no upperwork except mixtures

Roberts, PIPORG-L.

LÜBECK, *Marienkirche* (H)
Main Organ
Barthold Hering, 1516-1518
Rebuild: FriedrichStellwagen
1637-1641
Changes: Otto Diedrich Richborn
1704

Werck

Principal	16'
Quintadena	16'
Octava	8'
Spitz-Flöte	8'
Octava	4'
Hohlflöte	4'
Nasat	2⅔'
Rausch Pfeiffen IV	
Mixtura XV	
Scharff IV	
Trommete	16'
Trommete	8'
Zincke	8'

Brust

Principal	8'
Gedact	8'
Octava	4'
Hohlflöte	4'
Feld-Pfeiffe	2'
Gemshorn	2'
Sifflöte	1⅓'
Sesquialtera II	
Mixtura VIII	
Cimbel III	
Krumhorn	8'
Regal	8'

Accessories

Cymbelstern
Drum
Couplers: R/W, B/and other
Ventils
Tremulant

Rück-Positiv

Bordun	16'
Principal	8'
Hohl-Flöte	8'
Blockflöte	8'
Quintadena	8'
Octava	4'
Spiel-Flöte	2'
Sesquialtera II	
Mixtura V	
Scharff IV-V	
Dulcian	16'
Baarpfeiffe	8'
Trichter-Regal	8'
Vox Humana	8'

Pedal

Principal	32'
Principal	16'
Sub-Bass	16'
Octava	8'
Gedact	8'
Octava	4'
Nachthorn	2'
Bauerflöte	2'
Mixtura VI	
Gross Posaun*	24'
Posaune	16'
Dulcian	16'
Trommete	8'
Krumhorn	8'
Cornet	2'

*Apparently this stop did not go all the way down to low C on the pedals due to a lack of space or money.

Blanchard, 48.

LÜBECK, *Marienkirche* (H)
Totentanzorgel
Johannes Stephani, 1475-1477
Repairs: Hans Hantelmann, 1701

Hauptwerk
(partly by J. Stephani, 1476-1477)

Quintadena	16'
Prinzipal	8'
Spitzflöte	8'
Oktave	4'
Nasat	2⅔'
Rauschpfeife II	
Mixtur VIII-X	
Trompete	8'

Brustwerk
(added by H. Kröger, 1621-1622)

Gedackt	8'
Quintatön	4'
Hohlflöte	2'
Quintflöte	1⅓'
Scharf IV	
Krummhorn	8'
Schalmei	4'

Accessories
Coupler: R/H
Tremulant

Rückpositiv
(mostly by J. Scherer
1547-1548 or 1557-1558)

Prinzipal	8'
Rohrflöte (17th cent.?)	8'
Quintatön	8'
Oktave	4'
Rohrflöte	4'
Sifflöte	1⅓'
Sesquialtera II (17th cent.?)	
Scharff VI-VIII	
Dulzian (originally 8'?)	16'
Trichterregal	8'

Pedal
(Partly 1475-1477, 1621-1622)

Prinzipal	16'
Subbass (1621)	16'
Oktave	8'
Gedackt	8'
Oktave	4'
Quintatön	4'
Octave*	2'
Nachthorn	1'
Mixtur IV	
Zimbel II	
Posaune	16'
Dulcian (1761)	16'
Trompete	8'
Krummhorn*	8'
Schalmei	4'
Cornett	2'

*Two of three specification listings for this instrument include the Octave 2'; of the same three sets, only one lists the Krummhorn 8'.

Of note:
Lack of 2' stop on the Rückpositiv.

Williams, 1966, 98-99.

MÜHLHAUSEN
Blasiikirche (P, E, H)
Prior to 1708 rebuild
Builder unknown

Hauptwerk

Quintadena	16'
Prinzipal	8'
Gemshorn	8'
Oktave	4'
Gedackt	4'
Quinte	3'
Oktave	2'
Sesquialtera II	
Mixtur IV	
Zimbel II	
Trompete	8'

Rückpositiv

Gedackt	8'
Quintadena	8'
Prinzipal	4'
Salicionale	4'
Oktave	2'
Spitzflöte	2'
Quintflöte	1⅓'
Sesquialtera II	
Mixtur III	

Pedal

Prinzipal	16'
Subbass	16'
Oktave	8'
Oktave	4'
Rohrflöte	1'
Mixtur IV	
Posaune	16'
Trompete	8'
Kornett	2'

Accessories

- Drum
- Tremulant

Of note:

- Lack of coupler between manuals or to pedal.

Blanchard, 62.

MÜHLHAUSEN
Blasiikirche (P, E, H)
Johann Friedrich Wender, 1708

Ober and Hauptwerk

Quintatön	16'
Principal	8'
Violdigamba	8'
Oktave	4'
Gedackt	4'
Nassat	2⅔'
Oktave	2'
Sesquialtera II	
Mixtur IV	
Cymbel II	
Fagott	16'

Brustpositiv

Stillgedackt	8'
Fleute Douce	4'
Quinta	2⅔'
Octava	2'
Tertia	1⅗'
Mixtur III	
Schalemoy	8'

Accessories

Zimbelstern
Drum
Couplers: H/P, R/O, B/O
Tremulant

Rückpositiv

Gedackt	8'
Quintatön	8'
Principal	4'
Salicional	4'
Oktave	2'
Spitzflöte	2'
Quintflöte	1⅓'
Sesquialtera II	
Cymbel III	

Pedal

Untersatz	32'
Principal	16'
Subbass	16'
Oktave	8'
Oktave	4'
Rohrflötenbass	1'
Mixtur IV	
Posaune	16'
Trompete	8'
Kornett	2'

Of note:
Lack of 8' flute on Ober and Hauptwerk

Williams, 1966, 145-146.

WEIMAR, *Schlosskirche* (P, E, H)
Ludwig Compenius, 1658
Rebuilt: Johann Weishaupt, 1707-1708
Rebuilt: H. N. Trebs
1712-1714, 1719-1720

Ober Clavier

Quintadena	16'
Principal	8'
Grobgedackt	8'
Gemshorn	8'
Octava	4'
Quintadena	4'
Mixtur VI	
Cymbel III	

Unter Clavier

Principal	8'
Gedackt	8'
Viol di Gamba	8'
Octava	4'
Klein Gedackt	4'
Wald-Flöthe	2'
Sesquialtera IV	
Trompete	8'

Pedal

Gross Untersatz	32'
Sub-Bass	16'
Violon Bass	16'
Principal Bass	8'
Posaun Bass	16'
Trompete Bass	8'
Cornett Bass	4'

Accessories

Cymbelstern
Tremulant
Couplers: O/P, U/O

Of note:
Lack of 2' stop on Ober Clavier
A IV-rank Sesquialtera would be very unusual; its accuracy is questionable.

Williams 3, 124-125.

WEIMAR
Stadtkirche Petri und Pauli (H)
Christoph Junge, 1685

Ober Werk

Quintadena	16'
Principal	8'
Grobgedackt	8'
Gemshorn	8'
Viol di Gamba	8'
Octava	4'
Quinta	2⅔'
Super Octava	2'
Mixtur IV	
Cymbel III	
Trompeta	8'

Accessories

Cymbel Stern
Couplers: O/P, R/P, R/O
Tremulants: O, R

Rückpositiv

Grobgedackt	8'
Quintadena	8'
Principal	4'
Klein Gedackt	4'
Spill-Flöthe	4'
Viol di Gamba	4'
Octava	2'
Sifflöte	1'
Sesquialtera II	
Cymbel Mixtur	

Pedal

Sub-Bass	16'
Posaunen	16'
Trompet Bass	8'
Cornet Bass	2'

Of note:
Pedal is reed-heavy with only a single manual reed.

Owen, 151.

TAUBACH
Dorfkirche (P, E, H)
Heinrich Nicolaus Trebs, 1709-1710

Manual

Gedackt	8'
Quintathön	8'
Principal	4'
Quinta	2⅔'
Octava	2'
Tritonus [Terz]	1⅗'
Superoctav	1'
Mixtur III	

Pedal

Sup Bass	16'
Principal Bass	8'
Wald Flöth Bass	2'

Accessory Stops

Cymbelstern
Pedal coupler (Manual to Pedal?)
Tremulant

Of note:
On an organ of this size, the Tritonus is likely to be only a half-stop.

Sumner, 88.

HALLE
Liebfrauenkirche (P, E, H)
Christoph Cuntius, 1713-1716

Hauptwerk

Principal	16'
Quintatön	16'
Oktave	8'
Rohrflöte	8'
Gemshorn	8'
Quinte	5⅓'
Oktave	4'
Spitzflöte	4'
Quinte	2⅔'
Superoktave	2'
Sifflöt	2'
Terz	1⅗'
Mixtur VI	
Cymbel III/IV	
Trompete	16'
Trompete	8'

Oberwerk

Bordun	16'
Principal	8'
Gedackt	8'
Violdigamba	8'
Oktave	4'
Blockflöte	4'
Querflöte	4'
Quinte	2⅔'
Oktave	2'
Spitzflöte	2'
Terz	1⅗'
Waldflöte	1'
Mixtur V	
Cymbel III	
Fagott	16'
Vox Humana	8'

Brustwerk

Gedackt	8'
Quintatön	8'
Principal	4'
Nachthorn	4'
Flötedouce	4'
Quinte	2⅔'
Nasat	2⅔'
Oktave	2'
Waldflöte	2'
Terz	1⅗'
Spitzflöte	1'
Mixtur IV	
Cymbel II	
Ranket	8'
Oboe	4'

Pedal

Untersatz	32'
Principal	16'
Subbass	16'
Oktave	8'
Gedackt	8'
Quinte	5⅓'
Oktave	4'
Nachthorn	4'
Quinte	2⅔'
Superoktave	2'
Waldflöte	1'
Mixtur VII	
Cymbel IV	
Posaune	32'
Posaune	16'
Trompete	8'
Schallmey	4'
Cornet	2'

Accessories

- Cymbelstern
- Coupler: O/H
- Tremulant

Of note:
- This organ has two 2' stops on each manual.

Blanchard, 91.

ERFURT
Augustinerkirche (P, E, H)
Johann Georg Schröter, 1716

Hauptwerk

Quintatön	16'
Principal	8'
Gedackt	8'
Flötetraversiere	8'
Gemshorn	8'
Violdigamba	8'
Oktave	4'
Oktave	2'
Sesquialtera II	
Mixtur VI	
Cymbel III	
Trompete	8'

Mittelclavier

Bordun	16'
Principal	8'
Gedackt	8'
Rohrflöte	8'
Hohlflöte	4'
Spitzflöte	4'
Nasat	2⅔'
Waldflöte	2'
Quinta	1½'
Sifflöte	1'
Vox Humana	8'

Oberpositiv

Gedackt	8'
Flötetraversiere	8'
Quintatön	8'
Principal	4'
Gedackt	4'
Oktave	2'
Flageolet	1'
Sesquialtera II	
Scharp IV	

Pedal

Principal	16'
Subbass	16'
Violone	16'
Oktave	8'
Posaune	16'
Trompete	8'
Cornet	4'

Accessories

Glockenspiel
Star bells through all keys
Pedal Coupler
Two Ventils
Tremulant

Of note:
The presence of two transverse flutes (Hauptwerk and Positiv) is interesting.

Blanchard, 94.

LEIPZIG, *Paulinerkirche* (P, E, H)
Johann Scheibe, 1711-1717

Haupt Werck

Gross Principal *	16'
Quintadena *	16'
Klein Principal *	8'
Flute Allemande	8'
Gemshorn	8'
Octava *	4'
Quint-Nassat	2⅔'
Quinta auf Principal	2⅔'
Octavina	2'
Waldflöthe	2'
Cornetti III	
Gross-Mixtur V-VI	
Zinck II	
Chalumeau	8'

Brust

Principal	8'
Grobgedackt	8'
Viol di Gamba	8'
Octava	4'
Rohr Flöthe	4'
Nasat	2⅔'
Octava	2'
Largo	1½'
Sedecima	1'
Schweizer Pfeiffe	1'
Mixtur III	
Helle Cymbel II	

*Stops also available on Pedal

Seiten Werck

Lieblich Gedackt	8'
Quintadena	8'
Flute Douce	8'
Principal	4'
Quintadecima	4'
Decima nona	2⅔'
Hohlflöthe	2'
Viola	2'
Vigesima nona	1½'
Weite Pfeiffe	1'
Mixtur IV	
Helle Cymbel II	
Sertin	8'

Pedal

Subbass	16'
Jubal Bass	8'
Nachthorn Bass	8'
Grosse Hall-Quinta	5⅓'
Octav Bass	2'
Hohl-Flöth Bass	1'
Mixtur VI	
Posaunen Bass	16'
Trompeta	8'

Accessories

Cymbel Stern
Ventils
Tremulant

Of note:
Absence of a Trumpet 8' on the Hauptwerk interesting in light of the substantial reeds present on the Pedal.

Sumner, 94.

HAMBURG, *Jacobikirche* (H)
Arp Schnitger, 1685-1693

Werck

Principal	16'
Quintadena	16'
Octava	8'
Gedact im Cammerton	8'
Spitzflöte	8'
Octava	4'
Rohrflöte	4'
Super-Octava	2'
Blockflöte	2'
Rauschflöte II	
Mixtura VI	
Trommete	16'

Oberpositiv

Principal	8'
Rohrflöte	8'
Holzflöte	8'
Octava	4'
Spitzflöte	4'
Nasat	2⅔'
Octava	2'
Gemshorn	2'
Mixtura VI	
Cimbel III	
Trommete	8'
Krumhorn	8'
Trommete	4'

Brust

Principal	8'
Octava	4'
Hohlflöte	4'
Wald-Flöte	2'
Sesquialtera II	
Scharff V	
Dulcian	8'
Trichterregal	8'

Rückpositiv

Principal	8'
Gedackt	8'
Quintadena	8'
Octava	4'
Flöte	4'
Quer-Flöte	4'
Blockflöte	2'
Sifflet	1½'
Sesquialtera II	
Scharff IV-V-VI	
Dulcian	16'
Baarpfeiffe	8'
Schallmey	4'

Pedal

Principal	32'
Octava	16'
Sub-Bass	16'
Octava	8'
Octava	4'
Nachthorn	2'
Rauschpfeiffe II	
Mixtura VI	
Posaune	32'
Posaune	16'
Dulcian	16'
Trommete	8'
Trommete	4'
Cornet	2'

Accessories

Two Cymbel Sterns
Drum
Main ventil
Divisional ventils
Tremulant: O, R

Of note:
Two of four manuals – Werck and
Oberpositive - each have two 2' stops

Blanchard, 104.

HAMBURG
St. Katherinenkirche (P)
Hans Stellwagen, 1543
Restorations: 1606, 1636
Restored: Jonathan F. Besser, 1670

Hauptwerk

Prinzipal	16'
Bordun	16'
Quintadena	16'
Große Octave	8'
Spitzflöte	8'
Querflöte	8'
Kleine Octav	4'
Superoctave	2'
Rauschpfeife II	
Mixtur X	
Trompete	16'

Oberwerk

Prinzipal	8'
Hohlflöte	8'
Flöte	4'
Nasard	2⅔'
Gemshorn	2'
Waldflöte	2'
Scharf VI	
Trompete	8'
Zink	8'
Trompete	4'

Brustwerk

Holzprincipal	8'
Oktave	4'
Quintaden	4'
Waldflöte	2'
Scharff VII	
Dulzian	16'
Regal	8'

Rückpositiv

Prinzipal	8'
Gedeckt	8'
Quintaden	8'
Oktave	4'
Blockflöte	4'
Hohlflöte	4'
Quintflöte	1⅓'
Sifflett	1'
Sesquialter II	
Scharf VIII	
Baarpfeife	8'
Regal	8'
Schalmei	4'

Pedal

Prinzipal	32'
Oktave	16'
Subbaß	16'
Oktave	8'
Gedeckt	8'
Oktave	4'
Nachthorn	4'
Rauschpfeife II	
Mixtur V	
Zimbel III	
Posaune	32'
Posaune	16'
Dulzian	16'
Trompete	8'
Krummhorn	8'
Schalmei	4'
Kornett	2'

Klotz, 24.

LEIPZIG, *Thomaskirche* (P, H)
Main Organ
Johann Lange, 1598-1599
Rebuild: Johann Scheibe, 1721-1722

Oberwerk

Principal	16'
Quintatön	16'
Principal	8'
Spielpfeife	8'
Octava	4'
Quinta	2⅔'
Superoctava	2'
Sesquialtera II doppelt	
Mixtur VI/X	

Brust

Grobgedackt	8'
Principal	4'
Nachthorn	4'
Nasat	2⅔'
Gemshorn	2'
Sesquialtera	
Cymbel II	
Regal	8'
Geigenregal	4'

Rückpositiv

Principal	8'
Lieblich Gedackt	8'
Quintatön	8'
Klein Gedackt	4'
Spitzflöt	4'
Traversa	4'
Violin	2'
Shallflöt	1'
Rauschquinte doppelt	
Sesquialtera	
Mixtur IV	
Krumbhorn	16'
Trommet	8'

Pedal

Subbass	16'
Posaunenbass	16'
Trommetenbass	8'
Schallmeyenbass	4'
Cornet	2'

Accessories

Bird Song
Zimbelstern
Tremulant

Of note:

Praetorius specifies a Rückpositiv-to-Pedal coupler, but no other coupler is documented.

Blanchard, 121.

LEIPZIG, *Thomaskirche* (P, H)
Small Organ
Unknown builder, 1489
Repairs: JohannScheibe, 1720-1721
Zacharias Hildebrandt, 1727-1728

Oberwerk

Principal	8'
Gedackt	8'
Quintatön	8'
Octava	4'
Rauschquinte II	
Mixtur IV/X	
Symbel II	

Brust

Spitzflöt	2'
Sifflöt	1'
Trichterregal	8'

Accessories

Cymbelstern
Tremulant

Rückpositiv

Lieblich Gedackt	8'
Principal	4'
Hohlflöt	4'
Nasat	2⅔'
Octava	2'
Sesquialtera II	
Trommet	8'
Dulcian	8'

Pedal

Subbass	16'
Fagottbass	16'
Trommetbass	8'

Of note:
Pedal is in need of couplers. Pedal stops given are much like those of Silbermann

Blanchard, 124.

LEIPZIG, *Nikolaikirche* (H)
Johann Lange, 1597-1598
Rebuilt: Zacharias Thayssner,
1693-1694

Oberwerk

Quintadena	16'
Prinzipal	8'
Gedackt	8'
Gemshorn	8'
Octave	4'
Quinte	2⅔'
Nasat	2⅔'
Octave	2'
Waldflöte	2'
Terz	1⅗'
Mixtur VI	
Fagott	16'
Trompet	8'

Brustwerk

Quintadena	8'
Prinzipal	4'
Quinte	2⅔'
Octave	2'
Terz [1⅗' ?]	
Mixtur III	
Schalmei	4'

Rückpositiv

Gedackt	8'
Prinzipal	4'
Quintadena	4'
Gemshorn	4'
Viola di Gamba	4'
Quinte	2⅔'
Octava	2'
Terz	1⅗'
Mixtur IV	
Bombart	8'

Pedal

Subbass	16'
Octave*	4'
Posaune	16'
Trompet	8'
Schalmei	4'
Kornet	2'

Accessories

Bird Song
Zimbelstern
Coupler to both keyboards**
Tremulant

*Most likely is at 8' pitch since there are no manual-to-pedal couplers.
**Meaning is uncertain.

Klotz, 154-155.

LEIPZIG, *Neukirche* (H)
(Matthäuskirche)
Christoph Donat, Sr.and Jr.
1703-1704
Rebuilt: Johann Scheibe, 1721-1722

Vorderwerk

Quintatön	16'
Principal	8'
Grobgedackt	8'
Spielflöte	8'
Octava	4'
Gedackte Flöte	4'
Quinta	2⅔'
Superoctava	2'
Gemshorn	2'
Russflöte (Rauschflöte)	1'
Mixtur	

Hinterwerk

Lieblich Gedackt zur Music	8'
Viol' di Gamba	8'
Klein Gedackt	4'
Nasat	2⅔'
Octava	2'
Spitzflöt	1'

Pedal

Subbass	16'
Posaunenbass	16'
Trompetenbass	8'
Schalmeyenbass	4'

Accessories

Tremulant
Coupler to both keyboards*

*Meaning is uncertain.

Blanchard, 129.

LEIPZIG, J*ohanniskirche* (H)
Tobias Gottfried Trost, 1694-1695

Manual

Gedackt	8'
Quintathöna	8'
Principal	4'
Gedackt	4'
Quinta	2⅔'
Octava	2'
Sesquialtera	
Mixtura III	

Pedal

Subbass	16'
Principalbass	8'

Accessories

Tremulant

Blanchard, 131.

STÖRMTHAL, *Dorfkirche* (P, E, H)
Zacharias Hildebrandt, 1723

Manual

Principal	8'
Quintadena	8'
Gedackt	8'
Praestant	4'
Rohrflöte	4'
Nasat	2⅔'
Octava	2'
Tertia	1⅗'
Quinta	1⅓'
Sifflet	1'
Cornet III	
Mixtur III	

Pedal

Subbass	16'
Principalbass	8'
Lieblich Posaune	16'

Accessories

Tremulant
Manual coupler to pedal

Of note:
On a small organ of this size, the Tertia is likely to be only a half-stop.

Owen, 153.

GERA, *Stadtkirche* (P, E, H)
(Johanneskirche)
Johann Georg Finke, 1722-1724

Hauptmanual

Gedackter Untersatz	16'
Grossquintatön*	16'
Principal*	8'
Bordun*	8'
Gemshorn	8'
Violdigamba*	8'
Gemsquinte	5⅓'
Oktave	4'
Rohrflöte	4'
Cilinderquinte	2⅔'
Superoktave	2'
Sesquialtera	1⅗'
Mixtur VI	
Fagott	16'
Trompete	8'
Vox Humana	8'

Seitenwerk

Gedackt	8'
Principal	4'
Flöte Douce	4'
Nachthorn	4'
Gemshorn	4'
Gedackt italienische Quinte	2⅔'
Oktave	2'
Gemsquinte	1⅓'
Sesquialtera	
Mixtur IV	
Krumhorn or Hautbois**	8'

*Stops also available on the Pedal; Bourdon is transmitted at the 16' pitch.
** As listed by Blanchard.
***Not the same as Principal transmitted from Hauptwerk.

Brust

Enge Gedackt	8'
Quintatön	8'
Wald- or Dolkanflöte	4'
Nachthorn	4'
Principal	2'
Quinte	1⅓'
Oktave	1'
Mixtur III	

Pedal

Principalbass	16'
Subbass	16'
Violdigambenbass	16'
Principalbass***	8'
Posaunen-Untersatz	32'
Posaunen-Untersatz	16'
Trompetenbass	8'
Cornetbass	2'

Accessories

Kettledrum
Two large stars at each side
Tremulant
Coupler: H/P
Coupler for all manuals
Ventil

Of note:
Including those available from the Hauptwerk, there are five 16' flue stops with this specification – rather over-done.

Blanchard, 137.

DRESDEN, *Sophienkirche* (H, P)
Gottfried Silbermann, 1718-1720

Hauptwerk

Bordun	16'
Principal	8'
Rohr-Flöthe	8'
Spitz-Flöthe	8'
Octava	4'
Spitz-Flöthe	4'
Quinta	2⅔'
Superoctava	2'
Tertia	1⅗'
Cornet V	
Mixtur IV	
Cimbeln III	
Trompete	8'
Clarin	4'

Accessories

Tremulant
Manual coupler
Cut-off ventil for the basses
Pedal plays into Hauptwerk by means of separate trackers and pallet valves.*

*The pallets are permanently connected to the Pedal keys, but a drawknob controls ventils that admit or shut off wind to the rear pedal pallet boxes, creating a controllable coupler. (Blanchard, 136)

Oberwerk

Quintadena	16'
Principal	8'
Unda maris	8'
Grobgedackt	8'
Quintadena	8'
Octava	4'
Rohr-Flöthe	4'
Nasat	3'
Octava	2'
Quinta	1⅓'
Sifflet	1'
Mixtura	
Vox humana	8'

Pedal

PrincipalBass	16'
SubBass	16'
Posaune	16'
Trompete	8'

Blanchard, 142.

POMSSEN, *Dorfkirche* (H, P)
Builder unknown, ca 1600

Hauptwerk

Grobgedackt	8'
Principal	4'
Klein Gedackt	4'
Nasat	2⅔'
Octava	2'
Sesquialtera	
Mixtur III	
Cymbel II	
Trompeta	8'

Pedal

Sub-Bass	16'
Posaunen	16'
Cornet	2'

Accessory Stops

Cymbel-Stern
Bird Song
Tremulant
Manual to Pedal coupler

Blanchard, 148.

STÖNTZSCH, *Dorfkirche* (P, E, H)
Rebuilt and enlarged:
Johann Christoph Schmieder
1731-32

Hauptwerk

Rohrflöte	8'
Dulzflöte	8'
Principal	4'
Gedackt	4'
Nasat	2⅔'
Octava	2'
Terz	1⅗'
Sifflöte	1'
Mixtur III	

Pedal

Subbass	16'
Principalbass	8'
Lieblich Posaune	16'

Of note:
On a small organ such as this one, the Terz is likely to be only a half stop.

Blanchard, 151.

MÜHLHAUSEN
Marienkirche (E, H)
Rebuilt: Johann Friedrich and Christian Friedrich Wender
1734-1738

Hauptwerk

Rohrflöte	16'
Quintatön	16'
Principal	8'
Gedackt	8'
Gemshorn	8'
Violdigamba	8'
Oktave	4'
Kleingedackt	4'
Quinte	2⅔'
Oktave	2'
Waldflöte	2'
Mixtur VI	
Scharfe Cymbel III	
Basson	16'
Trompete	8'

Rückpositiv

Bordun	8'
Quintatön	8'
Principal	4'
Spitzflöte	2'
Sesquialtera II	
Mixtur III	

Oberwerk

Rohrflöte	8'
Principal	4'
Flute Douce	4'
Spitzflöte	4'
Salicet	4'
Gedackt Italienische Quinte	2⅔'
Oktave	2'
Terz	1⅗'
Cymbel III	
Sordino, or Muted Trumpet	8'

Pedal

Principal	16'
Untersatz	16'
Oktave	8'
Gemsquinta	5⅓'
Oktave	4'
Spitzflöte	2'
Rohrflöte	1'
Mixtur VI	
Posaune	32'
Posaune	16'
Trompete	8'
Cornettin	2'

Accessory Stops

Cymbelstern with 4 bells
Two Tremulants
Four ventils
Couplers: HW/PD, RP/HW
Two push knobs for coupling: HW and OW
Two *Kammerkoppel*, one for *Gross*-the other for *Kleinkammerton,* affecting the entire organ

Of note:
All of the manual mixtures have the same number of ranks. Very unusual.

Blanchard, 158.

DRESDEN, *Frauenkirche* (P)
Gottfried Silbermann, 1732-1736

Hauptwerk

Principal	16'
Octav-Principal	8'
RohrFlöte	8'
Viol di Gamba	8'
Octava	4'
SpitzFlöte	4'
Quinta	2⅔'
Octava	2'
Tertia	1⅗'
Cornett V	
Mixtur IV	
Cymbel III	
Fagott	16'
Trompette	8'

Brustwerk

Gedackt	8'
Principal	4'
Rohrflöte	4'
Nasat	2⅔'
Octava	2'
Gemshorn	2'
Quinta	1⅓'
Sufflet	1'
Mixtur III	
Chalumeau	8'

Accessory Stops

Tremulants, BW, HW and OW
Bass [Pedal] Ventil
Manual coupler

Oberwerk

Quintadena	16'
Principal	8'
Gedackt	8'
Quintadena	8'
Octava	4'
Flöte (Rohrflöte)	4'
Nasat	2⅔'
Octava	2'
Sesquialtera I	1⅗'
Mixtur IV	
Vox humana	8'

Pedal

Untersatz	32'
PrincipalBass	16'
OctavenBass	8'
OctavenBass	4'
Mixtur VI	
PosaunenBass	16'
TrompetenBass	8'
ClarinBass	4'

8'

Blanchard, 161.

WEISSENSEE, *Dorfkirche*
C. W. Schäfer, 1737-1738

Hauptwerk

Quintatön	16'
Principal	8'
Grobgedackt	8'
Octave	4'
Quinta	2⅔'
Mixture VI	

Werk

Stillgedackt	8'
Principal	4'
Octave	2'
Quinta	1⅓'

Pedal

Subbaß	32'
Violonbaß	16'
Octavbaß	8'
Posaunenbaß	16'

Accessories

Tremulant

Braun, *Bach-Jahrbuch* 1999, 22.

ALTENBURG, *Schlosskapelle* (P)
Tobias Heinrich Gottfried Trost
1735-1739

Hauptwerk

Gross-Quintadena*	16'
Flaute traverse*	16'
Principal	8'
Bordun*	8'
Rohrflöte	8'
Spitzflöte	8'
Viol di Gamba	8'
Octave*	4'
Klein-Gedackt	4'
Quinte	2⅔'
Superoctava	2'
BlockFlöte	2'
Sesquialtera II	
Mixtura VI-IX*	
Trompete	8'

Accessory Stops

Glockenspiel (saucer bells)
Tremulants: Hw and Ow
Tremulant: Vox humana
Manual coupler: O/H

*Stops also available on the Pedal

Oberwerk

Geigenprincipal	8'
Lieblich Gedackt	8'
Quintadena	8'
Hohlflöte	8'
Vugara	8'
Gemshorn	4'
Flaute douce II	4'
Nassat	2⅔'
Octave	2'
Waldflöte	2'
Superoctava	1'
Cornet V	
Mixtur IV-V	
Vox humana	8'

Pedal

Principalbass	16'
Subbass	16'
Violonbass	16'
Octavenbass	8'
Posaune	32'
Posaune	16'
Trumpete	8'

Of note:
Large numbers of 8' stops on both manuals.
With those from Hauptwerk, five 16' stops on pedal.
Tremulant for Vox humana is highly unusual and valid only if it is on a separate chest.

Owen, 154.

BAD BERKA, *Dorfkirche* **(*)**
Heinrich Nicolaus Trebs, 1742-1743

Hauptwerk

Quintadena	16'
Principal	8'
Gedackt	8'
Flöte	8'
Gemshorn	8'
Octave	4'
Gedackt	4'
Quinte	2⅔'
Nasat	2⅔'
Octave	2'
Sesquialtera II	
Mixtur V	
Trompete	8'

Accessory Stops

Manual-to-Pedal coupler

Brustwerk (= Oberwerk)

Gedackt	8'
Quintadena	8'
Principal	4'
Nachthorn	4'
Quinte	2⅔'
Octave	2'
Waldflöte	2'
Tritonus (= Terz 1⅗')	
Zimbel III	

Pedal

Subbass	16'
Principalbass	8'
Hohlflöte	4'
Posaune	16'
Trompete	8'
Cornet	4'

* Organ designed by Bach.

Dähnert, "Organs Played,"18.

LEIPZIG, *Johanniskirche* (P)
Johann Scheibe, 1742-1743

Hauptwerk

Quintathoen	16'
Principal	8'
Gedackt	8'
Octav	4'
Spielpfeiff	4'
Quinta	2⅔'
Octav	2'
Octav	1'
Cornetto II	
Mixtur IV	

Accessory Stops

Tremulant
Separatio, or coupler to Pedal and manual
Ventils for manuals

Oberwerck

Lieblich Gedackt	8'
Quintathoen	8'
Principal	4'
Spielpfeiff	4'
Hohlflöt	2⅔'
Octav	2'
Weitpfeiff	1'
Tertia II	

Pedal

Subbass	16'
Violon	8'
Posaun	16'
Trompet	8'

Blanchard, 173.

ZSCHORTAU, *Dorfkirche* (P, E)
Johann Scheibe, 1744-1746

Hauptwerk

Quinta Thön	16'
Principal	8'
Grob Gedackt	8'
Viola di Gamba (divided c/c#)*	8'
Octav	4'
Fleute-Travers	4'
Hohe Fleute (divided c/c#)	2⅔'
Super Octava	2'
Super Octava	1'
Mixtur III-IV	

Pedal

Sub Bass	16'
Violon	8'
Posaunen Bass	16'

Accessory Stops

Tremulant
Manual-Pedal coupler

*Meaning of parenthetical material unclear.

Blanchard, 176.

NAUMBURG, *Wenzelskirche* (P, E)
Zacharias Hildebrandt, 1743-1746

Hauptwerk

Prinzipal	16'
Quintadena	16'
Oktave	8'
Gedeckt	8'
Spillflöte	8'
Oktave	4'
Spillflöte	4'
Quinte	2⅔'
Superoktave	2'
Weitpfeife	2'
Sesquialtera II	
Kornett IV	
Mixtur VIII	
Bombarde	16'
Trompete	8'

Rückpositiv

Prinzipal	8'
Rohrflöte	8'
Quintadena	8'
Viola da gamba	8'
Oktave	4'
Rohrflöte	4'
Fugara	4'
Nasard	2⅔'
Superoktave	2'
Rauschpfeife II	
Zimbel V	
Fagott	16'

Accessory Stops

Zimbelstern
Tremulant: Rückpositiv
Four ventils
Couplers: H/P; O/H; R/H

Oberwerk

Bordun	16'
Prinzipal	8'
Unda maris	8'
Hohlflöte	8'
Oktave	4'
Gemshorn	4'
Quinte	2⅔'
Superoktave	2'
Waldflöte	2'
Terz	1⅗'
Quinte	1⅓'
Sifflett	1'
Scharf V	
Vox humana	8'

Pedal

Prinzipal	16'
Subbaß	16'
Violone	16'
Oktave	8'
Violone	8'
Oktave	4'
Nachthorn	2'
Mixtur VII	
Posaune	32'
Posaune	16'
Trompete	8'
Trompete	4'

Klotz, 55.

POTSDAM
Heiliggeistkirche (P)
Joachim Wagner, 1730

Hauptwerk

Bordun	16'
Principal	8'
Gedackt*	8'
Octave*	4'
Quinte	2⅔'
Octave*	2'
Cornett III	
Scharff V	
Cimbel III*	
Trompete	8'

Pedal

Subbaß	16'
Posaune	16'
Trompete	8'

* These stops are shared with the Oberwerk.

Oberwerk

Quintadena	8'
Flöte	4'
Nassat	2⅔'
Quinte	1⅓'
Vox humana	8'

Accessories

Coupler: H/P

Sprondel, PIPORG-L.

POTSDAM, *Garnisonkirche* (P)
Joachim Wagner, 1730-1732

Haupt-Manual

Bourdon	16'
Principal	8'
Rohrflöt	8'
Octav	4'
Flaut Trav.	4'
Quinta	2⅔'
Octav	2'
Cornet V	
Scharff V	
Cimbel IV	
Fagot	16'
Trompet	8'

Ober-Clavier

Gedackt	8'
Quintadena	8'
Rohrflöt	4'
Nassat	2⅔'
Octav	2'
Tertia	1⅗'
Sifflöt	1'
Cimbel III	
Vox humana	8'

Unter-Clavier

Quintadena	16'
Principal	8'
Gedackt	8'
Salicinal	8'
Octav	4'
Vugam (Fugara)	4'
Quint	2⅔'
Octav	2'
Waldflöte	2'
Quint	1⅓'
Mixtur IV	
Hoboi	8'

Pedal

Principal	16'
Violon	16'
Octav	8'
Quint	5⅓'
Octav	4'
Mixtur VI	
Posaune	16'
Trompet	8'
Cleron	4'

Accessory Stops

Glocken-Spiel

Pair of kettle-drums (struck by angels)

Tremulant

Eagles (which fly toward the sun as if they were natural)

Trumpet Stop (causes certain angels to hold to their mouths the trumpets they have in their hands.)

Coupler: Oc/Hm

Four ventils

Of note:

If there is no manual-to-pedal coupler, the pedal is quite loud for softer registrations on the manuals.

Blanchard, 187.

POTSDAM
Nikolai-(Stadt-)Kirche (P)
Johann Michael Röder, 1713

Haupt-Werck

Quintaden	16'
Principal	8'
Octave	4'
Quinta	2⅔'
Octave	2'
Quinta	1⅓'
Mixtur V	
Trompet	8'

Seiten-Werck

Gedackt	8'
Principal	4'
Quinta	2⅔'
Octave	2'
Tertian	1⅗'
Cimbel III	
Vox humana	8'

Pedal

Subbass	16'
Principal	8'
Octave	4'
Octave	2'
Mixtur V	
Posaun	16'
Trompet	8'
Trompet	4'

Accessory Stops

Cimbel with stars
Tremulant
One main ventil
Three divisional ventils

Blanchard, 189.

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